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Hydroacoustic Herring Survey Results From Hecate Strait, December 7 - 18, 1988. *J. P. TULLY* Cruise JPT88A

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June 1989

Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 2040

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Canadian Manuscript Report of

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HYDROACOUSTIC HERRING SURVEY RESULTS FROM HECATE STRAIT, DECEMBER 7 - 18, 1988. J. P. TULLY CRUISE JPT88A

by

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90-02299/

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Cat. No. Fs 97-4/2040E ISSN 0706-6473

Correct citation for this publication:

McCarter, B., R. Kieser and D. E. Hay. 1989. Hydroacoustic herring survey results from Hecate Strait, December 7-18, 1988. J. P. TULLY Cruise JPT88A. Can. MS Rep. Fish. Aquat. Sci. 2040: 69 p.

ABSTRACT

McCarter, B., R. Kieser and D. E. Hay. 1989. Hydroacoustic herring survey results from Hecate Strait, December 7-18, 1988. J. P. TULLY Cruise JPT88A. Can. MS Rep. Fish. Aquat. Sci. 2040: 69 p.

Coastal waters within the 50-200 m bottom contour of Hecate Strait were surveyed to determine Pacific herring abundance and distribution. Echo integration biomass estimates of midwater herring were 6,230 tonnes at Browning Entrance, 17,500 tonnes SW of Bonilla Island, 8,270 tonnes in Juan Perez Sound, 7,910 tonnes in Sedgwick Bay and 2,160 tonnes in mid-Hecate Strait. These estimates are roughly similar to biomass estimates that rely on spawn escapement data and age structure analyses. Diurnal migrations complicate echo integration of Pacific herring. Herring schools were difficult to integrate acoustically because of bottom echo interference during the day and a limited echo integration window near the surface at night. Best estimates were obtained just before dawn when herring were descending in the water column.

Key words: Pacific herring, Hecate Strait, hydroacoustic, abundance estimate, survey

RÉSUMÉ

McCarter, B., R. Kieser and D. E. Hay. 1989. Hydroacoustic herring survey results from Hecate Strait, December 7-18, 1988. J. P. TULLY Cruise JPT88A. Can. MS Rep. Fish. Aquat. Sci. 2040: 69 p.

Parmi 9254 homards américains (Homarus americanus) marqués et relâchés, de 1983 à 1987, en cinq points des zones côtière et semi-hauturière au sud de la Nouvelle-Écosse, 1298 (14,0 %) ont été recapturés au cours des cinq années suivant le relâchement. En moyenne, les homards matures (longueur de la carapace ou LC≥ 95 mm) ont parcouru des distances beaucoup plus grandes que les homards immatures (LC < 95 mm). La plupart (94 %) des homards immatures et 59 % des homards matures ont été recapturés à moins de 18,5 km (10 milles marins ou NM) des zones de relâchement. Un bon nombre (22,7 %) des homards matures ont été recapturés à plus de 92,6 km (50 NM) des endroits où ils avaient été relâchés; la plus grande distance, à savoir 539,7 km, a été parcourue par un homard mâle capturé au sud du cap Cod 1,4 année après avoir été relâché. Les déplacements s'effectuaient généralement en direction sud, avec certains mouvements d'est en ouest et d'ouest en est entre les zones côtière et hauturière (par exemple bassin Crowell, pente continentale des bancs de Georges et de Brown, golfe du Maine et sud de la Nouvelle-Écosse). Des déplacements d'est en ouest et d'ouest en est ont été notés dans la région du cap de Sable et de la pointe sud de la Nouvelle-Écosse, ce qui indique qu'il y a, dans une certaine mesure, mélange des stocks de homards au large de l'est de la Nouvelle-Écosse et du sud-ouest de la Nouvelle-Écosse. Les grandes distances parcourues et le mélange des stocks de homards matures indiquent qu'il pourrait s'avérer difficile d'utiliser les données de marquage pour localiser les frontières biologiques entre les stocks de homards du golfe du Maine, de la plate-forme continentale adjacente, de la plate-forme Néo-Écossaise et des régions côtières du sud-ouest de la Nouvelle-Écosse et de l'extrémité sud de l'est de la Nouvelle-Écosse.

Mots-clés: homard américain, déplacement, marquage, Homarus americanus

INTRODUCTION

The primary objective of this survey was to continue the investigation into the feasibility of using hydroacoustic biomass estimates of Pacific herring (Clupea harengus pallasi) for stock assessment. The second objective was to identify and confirm sites where herring concentrate to overwinter prior to moving into shallower water for spawning. Unlike previous surveys, midwater trawl tows could not be made because the work was conducted on the hydroacoustic vessel, J. P. TULLY. The identity of major hydroacoustic targets was determined by echogram interpretation, based on previous winter acoustic and fishing surveys in 1984 (Kieser et al. 1987), 1985 (McCarter et al. 1987) and 1987 (McCarter et al. 1988). Herring biomass estimates obtained from this survey should not necessarily be regarded as accurate but rather, with the time and resources available they represent reasonable hydroacoustic estimates in view of the dynamic vertical and horizontal movements of herring schools. These herring estimates are compared with other independent stock estimates which are based on spawn surveys and analyses of catch and age structure (Haist et al. 1989).

Information from this survey also contributes to the Hecate Strait Project in which the overall objective is to map fish assemblages and develop an ecological basis for mixed-species assessment and management techniques. A schedule of the J. P. TULLY's activities is located in Appendix Table 1. This report describes hydroacoustic fish density estimates and their derivation.

METHODS

HYDROACOUSTIC EQUIPMENT

The hydroacoustic equipment installed on the J. P. TULLY was configured for echo integration. Its major components were a Biosonics model 101 echo sounder, Biosonics model 121 echo integrator and a Simrad chart recorder. Integrated sounding data was processed on an AST microcomputer and analog data was recorded on VHS video cassette tapes. An 8 by 13 degree, Simrad 38 kHz ceramic transducer was mounted in a 1.5 m torpedo shaped body which was towed behind the vessel at a depth of 15-25 m while the ship's relative speed was maintained at 8-10 knots. The towed body contained a roll and pitch sensor that recorded the body's attitude on a chart recorder. Most parallel transects traversed were 1.0 nm apart and based on latitude minute lines. For area computations, single transects were assumed to have a width of 1.0 nm. The echo sounder and transducer were calibrated at the hydroacoustic barge of the University of Washington, Seattle on March 11, 1988. A fish target strength of -32 dB/kg was used to convert the measured

strength to fish density estimates. Biomass estimates were obtained by expanding the surface density over the area of interest.

The location of herring schools exceeding 50-100 tonnes are shown in Figure 1 and those exceeding 500 tonnes are shown in Figures 2-5. The echo integration window for most transects includes the entire water column except for a distance of 5 m from the sea floor and 5 m to the transducer. These depth strata were not integrated to avoid bottom echo integration and surface interference.

RESULTS AND DISCUSSION

HYDROACOUSTIC SURVEYS

A summary of all biomass estimates in tonnes obtained for each geographical region is shown in Table 1. Biomass estimates for individual transects and transect groupings or localities is presented in Appendix Table 2. Three major overwintering herring concentrations were assessed: (1) Browning Entrance (transects 300-520) comprised an area of 590 km^2 with a biomass estimate of 6,230 tonnes (Fig. 1); (2) Juan Perez Sound (transects J1-J5) and Darwin Sound/Sedgwick Bay (transects DAR1-4 and SED1-2) comprised a combined area of 71 km^2 with a total biomass estimate of 16,180 tonnes (Fig. 2); and (3) SW Bonilla Island (transects B1-B7) comprised an area of 141 km^2 with a biomass estimate of 17,500 tonnes (Fig. 3). In addition to these three major locations, Dixon Entrance (Fig. 4) and inshore and offshore areas of South Moresby Island (Fig. 5) also were surveyed. In all locations some transects were repeated to assess the effect of survey timing on biomass estimates.

BROWNING ENTRANCE

Herring biomass estimates were difficult to obtain during the first and second coverages of the Browning Entrance transects because many of the herring schools were close to the bottom during daylight hours and near the surface during dark hours, outside the echo integration window. The first and second biomass estimates of 6,150 t and 6,230 t respectively, are conservative. The herring schools that were echo integrated in Browning Entrance were located predominantly in the deeper waters of the gully during the day and in the shallow waters of the shelf during the night (Fig. 1). This observation has been noted during previous hydroacoustic surveys and is an effect of the limited window of the present echo integration system.

JUAN PEREZ SOUND

Biomass estimates were also difficult to obtain in the inlets and narrow sounds that were surveyed because the irregular sea bottom confounded regular bottom tracking and prevented distinct integration of fish schools. This problem has been documented (McCarter et al. 1987, 1988) and should be considered when chosing survey tracklines. The integration depth strata window, however, can be set manually to a depth where the major shools are stratified, provided there are no sea floor interjections. This was done for all hydroacoustic coverages of the Juan Perez Sound area (Fig. 2).

A further problem during the first three coverages of Juan Perez Sound was the inability to assess high herring densities near the surface at night because of the limited echo integration window near the surface. Biomass estimates of 1,191 t, 1,830 t and 2,960 t respectively were obtained using a 5-100 m selected depth strata interval from the transducer. The fourth survey coverage in Juan Perez Sound, however, was conducted while herring were descending in the water column during the early morning and resulted in the highest biomass estimate of 8,270 t using a 5-60 m selected depth strata interval. An echogram of transects J3 and J4 where 85 percent of this biomass was assessed is shown in Figure 6 and the corresponding full biomass output data in five minute intervals is shown in Table 2.

SW BONILLA ISLAND

The first coverage of the Bonilla Island fishing ground was aborted due to rough weather and a damaged hydroacoustic cable. Two herring schools were echo integrated resulting in a biomass estimate of 1,880 t. The second coverage of this fishing ground at 05:05-07:32 hours assessed very dense herring schools extending from the sea floor to 10-40 m from the transducer. There were no bottom tracking difficulties and a biomass estimate of 17,500 t was obtained (Fig. 3). An echogram of transects B3 and B4 where 96% of this biomass was assessed is shown in Figure 7 and the corresponding full biomass output data in five minute intervals is shown in Table 3.

DIXON ENTRANCE

A total midwater biomass estimate of 5,130 t was obtained primarily on the Two Peaks fishing ground (Fig. 4). Species composition of midwater schools could not be ascertained but mixed pollock and herring were suspected. A substantial number of whales were sighted in the area.

SOUTH MORESBY ISLAND

No large herring schools were detected. A cumulative biomass estimate could not be obtained because of bottom tracking difficulties in the inlets and narrow sounds that were surveyed (Fig. 5). Repeated coverage of Juan Perez Sound on a different set of transects resulted in a herring biomass estimate of 6,470 tonnes.

COMPARISON OF HYDROACOUSTIC ESTIMATES WITH OTHER BIOMASS ESTIMATES

The predicted stock biomass from age-structured and escapement models respectively, were 19,100 t and 11,700 t in the Queen Charlotte Islands district (assuming average recruitment) by Haist et al. (1989). In comparison, the hydroacoustic biomass estimate was 8,270 t in Juan Perez Sound with an additional 7,910 t in Sedgwick Bay for a total of 16,180 t.

In the Prince Rupert District predicted stock biomass from age-structured and escapement models were 47,100 t and 28,100 t, respectively. In comparison, the hydroacoustic biomass estimates were: (1) 6,230 t in Browning Entrance, (2) 17,500 t SW of Bonilla Island, and (3) 2,160 t in mid-Hecate Strait for a total of 25,890 t.

CONCLUSIONS

Overwintering Hecate Strait herring were concentrated in the same areas as previous winter surveys in 1984 (Kieser et al. 1987), 1985 (McCarter et al. 1987) and 1987 (McCarter et al. 1988). Also biomass estimates were similar to those of previous surveys and with estimates made by other stock assessment methods. A significant difference in the total hydroacoustic biomass estimate in the Prince Rupert District in 1988-89 was likely attributable to incomplete hydroacoustic coverage in the Browning Entrance area. In the Queen Charlotte Island area it appears that stock size may have increased since the 1985-86 season. Other stock assessment methods based on spawn surveys and analyses of catch and age structure (Haist et al. 1989) support this view. Hydroacoustic surveys using the integration technique have significant potential, however, considerable effort must be expended to ensure complete coverage of overwintering herring schools. Depth coverage limitations of the present echo integration system call for a survey design, precisely coordinated to coincide with the diurnal migration patterns of herring at each location and time.

ACKNOWLEDGMENTS

We thank Captain J. Anderson and crew of the J. P. TULLY for their generous cooperation and assistance. Lorena Hamer assisted in monitoring acoustic instruments and recording data.

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Table 1. Summary of herring biomass estimates (t) by locality obtained during J. P. TULLY cruise, December 7-18, 1988.

Locality	Event Number	Transect Name	Survey Area (km2)	Estimated Biomass (t)	Time (PST)	Date (D/M/Y)
W. Banks Is. (first coverage)	8-28	A4-A7	298	No est.	18:52-24:00 00:00-05:23	08.12.88 09.12.88
Browning Entr. (first coverage)	28-89	280-540	714	6,150	05:23-24:00 00:00-11:56	09.12.88 10.12.88
Dixon Entr.	92-125	B1-B17	521	No est.	13:51-19:57 08:35-21:53	10.12.88 11.12.88
Browning Entr. (second coverage)	125-182	300-520	590	6,230	21:53-24:00 00:00-19:29	11.12.88 12.12.88
Bonilla Is. (first coverage aborted)	182-187	T0-T2S	55	1,880	19:29-21:20	12.12.88
Juan Perez Snd. (first coverage)	190-207	J1-J5	35	1,191[a]	16:48-19:08	13.12.88
Juan Perez Snd. (second coverage)	199-207	J1-J5	35	1,830[a]	19:43-22:00	13.12.88
Darwin-Sedgwick	207-216	DAR1-4,SED1-2	35	7,910[b]	22:00-24:00 00:00-01:41	13.12.88 14.12.88
Juan Perez Snd. (third coverage)	216-223	J1-J5	36	2,960[a]	02:05-04:33	14.12.88
Juan Perez Snd. (fourth coverage)	224-231	J1-J5	36	8,270[c]	05:05-07:32	14.12.88
S. Moresby Is.	232-261	S1-8, L1-12	329	No est.	08:11-22:50	14.12.88
Juan Perez Snd. (fifth coverage)	261-266	L13, L15	28	6,470[b]	22:50-24:00 00:00-00:39	14.12.88 15.12.88
Laskeek offshore	266-281	L16-29	231	No est.	00:39-07:57	15.12.88
Laskeek inshore	281-301	L30-34, D1-4	235	No est.	07:57-15:47	15.12.88
Mid-Hecate Str	301-321	R1-3, H2-16	318	2,160	17:25-24:00 00:00-03:25	15.12.88 16.12.88

Table 1. (cont'd).

Locality	Event Number	Transect Name	Survey Area (km2)	Estimated Biomass (t)	Time (PST)	Date (D/M/Y)
Bonilla Is. (second coverage)	321-334	B1-B7	141	17,500	03:25-07:55	16.12.88
West Banks Is. (second coverage)	339-347	C1-C8	224	No est.	09:08-16:00	16.12.88

[a]Biomass estimate is based on a selected depth strata interval of 5-100 meters to avoid bottom interference. Unfootnoted estimates are based on a 5-200 m maximum echo integration depth interval from the transducer.

[b]Biomass estimate is based on a selected depth strata interval of 5-40 meters to avoid bottom interference. Unfootnoted estimates are based on a 5-200 m maximum echo integration depth interval from the transducer.

[c]Biomass estimate is based on a selected depth strata interval of 5-60 meters to avoid bottom interference. Unfootnoted estimates are based on a 5-200 m maximum echo integration depth interval from the transducer.

Table 2. Full hydroacoustic biomass output of Juan Perez Sound transects J3 and J4 (fourth coverage) of J. P. TULLY cruise, December 7-18, 1988. A biomass estimate in tonnes is given for each 5 minute interval under the far right column headed 'BIOMASS' and a cumulative biomass follows for each transect. Parameters are described in Appendix Table 2. Figure 6 presents the echogram interval for these transects.

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*DATE 14-DEC-88

*Event	Time	Latitude	Longitude
*EVE 227	06:11	52 30.94	131 25.18

*! Tra	T-name	Seq1 #	Seq2 #	Pit #	Dis nm	Bea deg	TimeD hrs	Speed kn
*TRA	J3	185	189	1097	3.329	73.242	0.367	9.080

*LOU	Seq #	Pi #	Wid km	Area km^2	Dep m	Col m	Dcs m	Dcb m	Surf D kg/m^2	Biomass t	Echogram Interval (fig. 6)
>	185	250	1	1.30	201.9	55.0	23.6	178.3	7.02E-02	9.14E+01	-
>	186	250	1	1.30	201.9	55.0	20.0	181.9	7.79E-01	1.01E+03	-1-
>	187	249	1	1.30	201.9	55.0	19.0	182.9	3.64E-01	4.72E+02	-2-
>	188	249	1	1.30	201.9	55.0	19.0	182.9	1.32E-01	1.71E+02	-3-
>	189	99	1	0.52	201.9	55.0	17.1	184.8	4.83E-02	2.49E+01	-

N #	P #	Len km	Area km^2	Dep m	Col m	Dcs m	Dcb m	Lcb km	Vol D kg/m^3	Surf D kg/m^2	Biomass t
5	1097	6.2	5.7	201.9	55.0	19.8	182.1	2.7	5.65E-03	3.10E-01	1.77E+03

*Event	Time	Latitude	Longitude
*EVE 229	06:38	52 31.33	131 20.06

*! Tra	T-name	Seq1 #	Seq2 #	Pit #	Dis nm	Bea deg	TimeD hrs	Speed kn
*TRA	J4	191	195	1149	3.515	248.117	0.383	9.170

*LOU	Seq #	Pi #	Wid km	Area km^2	Dep m	Col m	Dcs m	Dcb m	Surf D kg/m^2	Biomass t	Echogram Interval (fig. 6)
>	191	250	1	1.31	201.9	55.0	24.6	177.3	2.01E-02	2.63E+01	-
>	192	250	1	1.31	201.9	55.0	27.6	174.3	3.71E-01	4.86E+02	-4-
>	193	249	1	1.31	201.9	55.0	28.3	173.6	1.88E+00	2.46E+03	-5-
>	194	249	1	1.31	201.9	55.0	32.1	169.8	1.48E+00	1.94E+03	-6-
>	195	151	1	0.79	201.9	55.0	37.0	164.9	4.88E-01	3.87E+02	-7-

N #	P #	Len km	Area km^2	Dep m	Col m	Dcs m	Dcb m	Lcb km	Vol D kg/m^3	Surf D kg/m^2	Biomass t
5	1149	6.5	6.0	201.9	55.0	30.3	171.6	4.1	1.60E-02	8.78E-01	5.29E+03

Table 3. Full hydroacoustic biomass output of Bonilla Island transects B3 and B4 (second coverage) of J. P. TULLY cruise, December 7-18, 1988. A biomass estimate in tonnes is given for each 5 minute interval under the far right column headed 'BIOMASS' and a cumulative biomass follows for each transect. Parameters are described in Appendix Table 2. Figure 7 presents the echogram interval for these transects.

*DATE 16-DEC-88

*Event	Time	Latitude	Longitude
*EVE 325	04:46	53 27.21	130 50.40

*! Tra	T-name	Seq1 #	Seq2 #	Pit #	Dis nm	Bea deg	TimeD hrs	Speed kn
*TRA	B3	147	152	1450	5.254	303.762	0.500	10.509

*LOU

Seq #	Pi #	Wid km	Area km^2	Dep m	Col m	Dcs m	Dcb m	Surf D kg/m^2	Biomass t	Echogram Interval (fig. 7)
> 147	250	2	3.73	94.7	94.7	45.7	49.0	3.53E-03	1.32E+01	-
> 148	249	2	3.71	84.1	84.1	45.1	38.9	3.93E-03	1.46E+01	-
> 149	249	2	3.71	74.6	74.6	42.2	32.4	3.74E-03	1.39E+01	-
> 150	249	2	3.71	67.8	67.8	58.7	9.1	9.03E-01	3.35E+03	-1-
> 151	249	2	3.71	64.3	64.3	45.8	18.5	5.79E-01	2.15E+03	-2-
> 152	204	2	3.04	55.6	55.6	41.5	14.1	1.55E+00	4.70E+03	-3-

N #	P #	Len km	Area km^2	Dep m	Col m	Dcs m	Dcb m	Lcb km	Vol D kg/m^3	Surf D kg/m^2	Biomass t
6	1450	9.7	21.6	74.1	74.1	48.0	13.5	7.7	6.40E-03	4.74E-01	1.02E+04

*Event	Time	Latitude	Longitude
*EVE 327	05:22	53 31.05	130 56.00

*! Tra	T-name	Seq1 #	Seq2 #	Pit #	Dis nm	Bea deg	TimeD hrs	Speed kn
*TRA	B4	155	162	1935	4.987	122.509	0.650	7.672

*LOU

Seq #	Pi #	Wid km	Area km^2	Dep m	Col m	Dcs m	Dcb m	Surf D kg/m^2	Biomass t	Echogram Interval (fig. 7)
> 155	249	2	2.64	45.6	45.6	29.5	16.1	1.93E-02	5.09E+01	-6-
> 156	249	2	2.64	56.1	56.1	32.8	23.3	2.42E+00	6.39E+03	-7-
> 157	249	2	2.64	61.1	61.1	52.2	8.9	2.64E-02	6.98E+01	-
> 158	249	2	2.64	64.2	64.2	30.1	34.1	2.44E-03	6.45E+00	-
> 159	249	2	2.64	69.8	69.8	35.8	34.0	2.14E-03	5.65E+00	-
> 160	249	2	2.64	73.7	73.7	26.8	46.9	2.02E-03	5.32E+00	-
> 161	249	2	2.64	80.9	80.9	30.9	50.0	2.21E-03	5.84E+00	-
> 162	192	2	2.04	89.8	89.8	47.1	42.7	5.45E-03	1.11E+01	-

N #	P #	Len km	Area km^2	Dep m	Col m	Dcs m	Dcb m	Lcb km	Vol D kg/m^3	Surf D kg/m^2	Biomass t
8	1935	9.2	20.5	67.0	67.0	33.0	23.2	1.8	4.76E-03	3.19E-01	6.54E+03

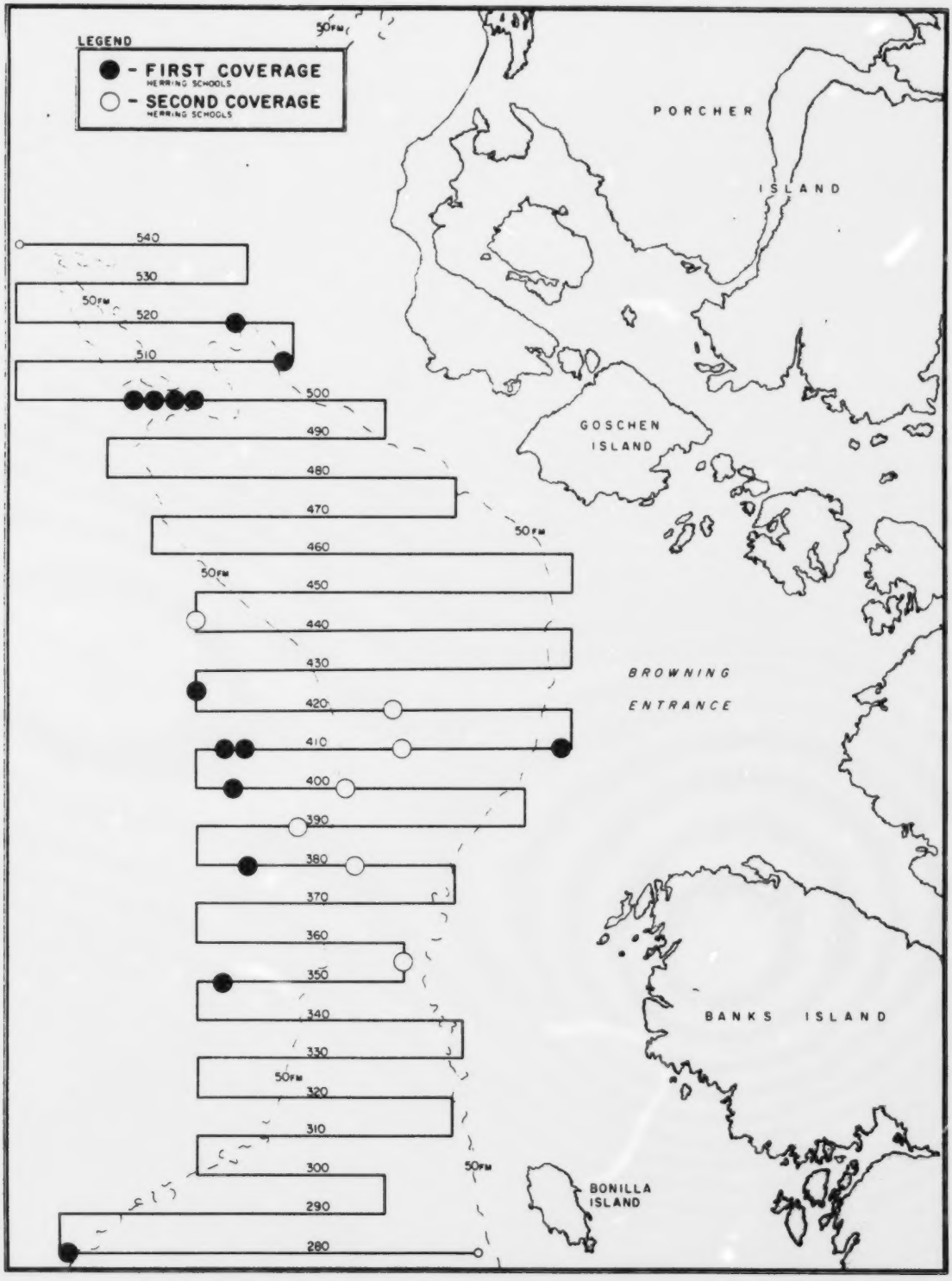

Fig. 1. Hydroacoustic transects and major herring schools greater than 50-100 t in Browning Entrance during J. P. TULLY cruise, December 7-18, 1988.

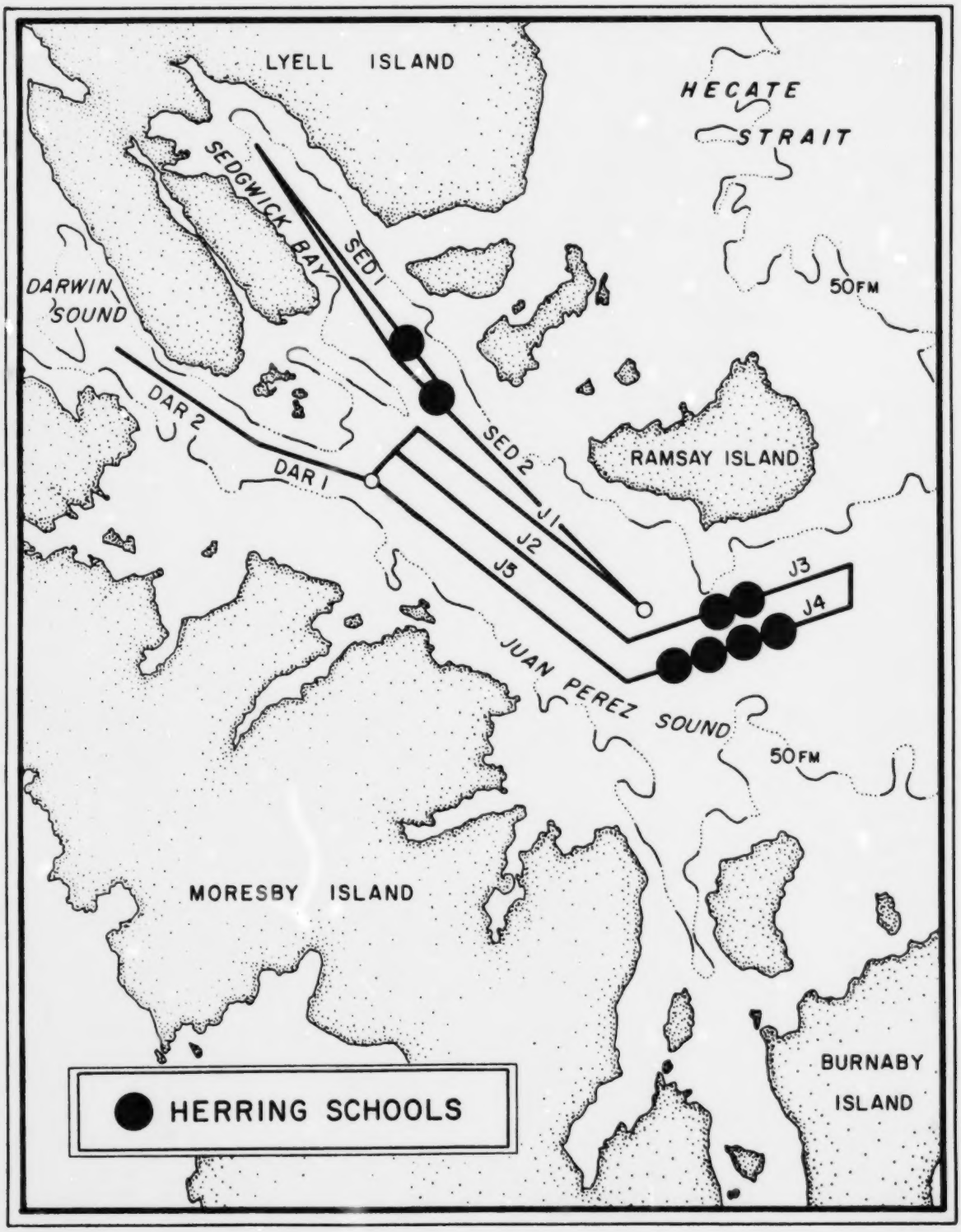

Fig. 2. Hydroacoustic transects and major herring schools greater than 500 t in Juan Perez Sound during J. P. TULLY cruise, December 7-18, 1988.

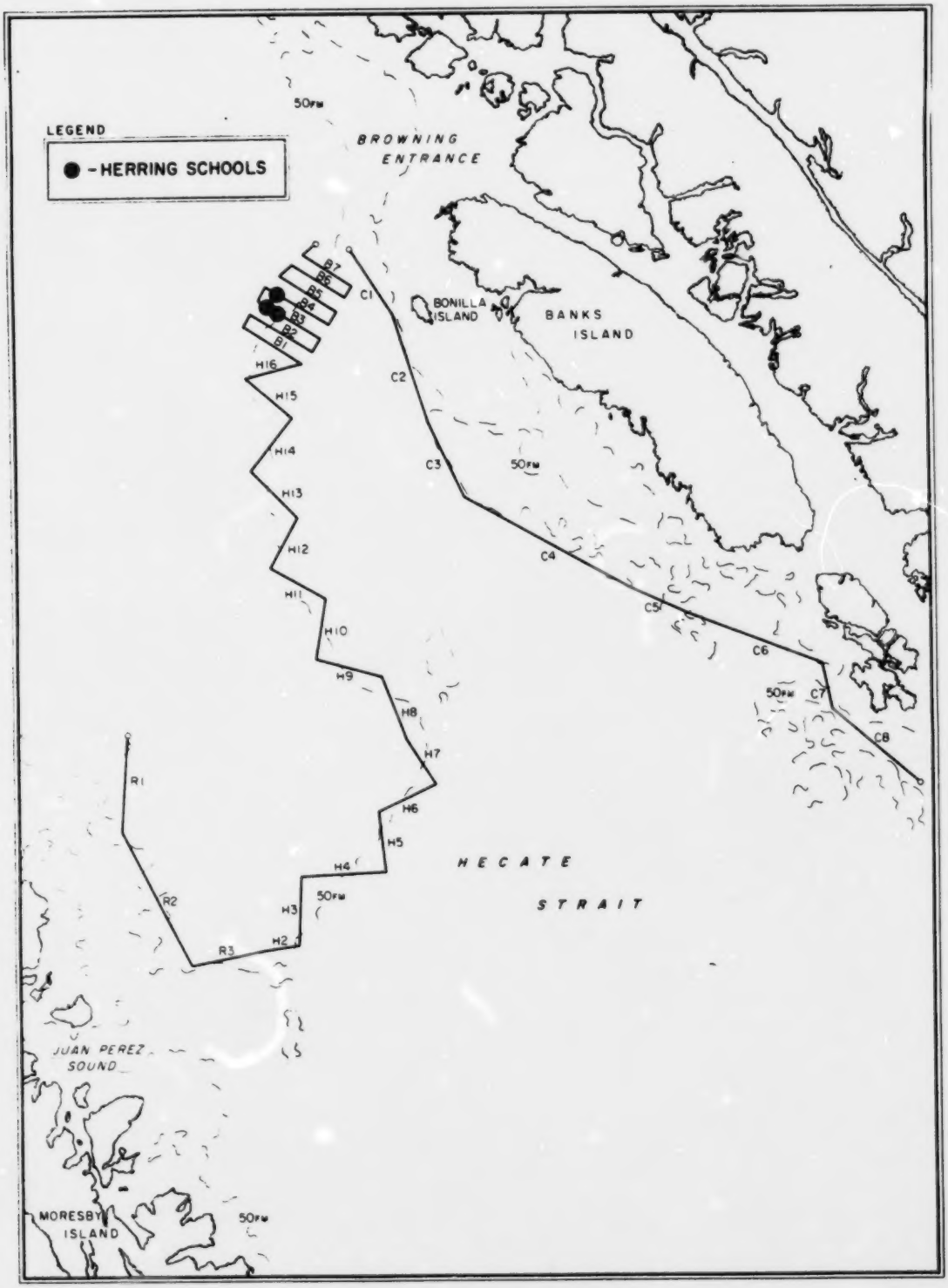

Fig. 3. Hydroacoustic transects and major herring schools greater than 500 t SW of Bonilla Island during J. P. TULLY cruise, December 7-18, 1988.

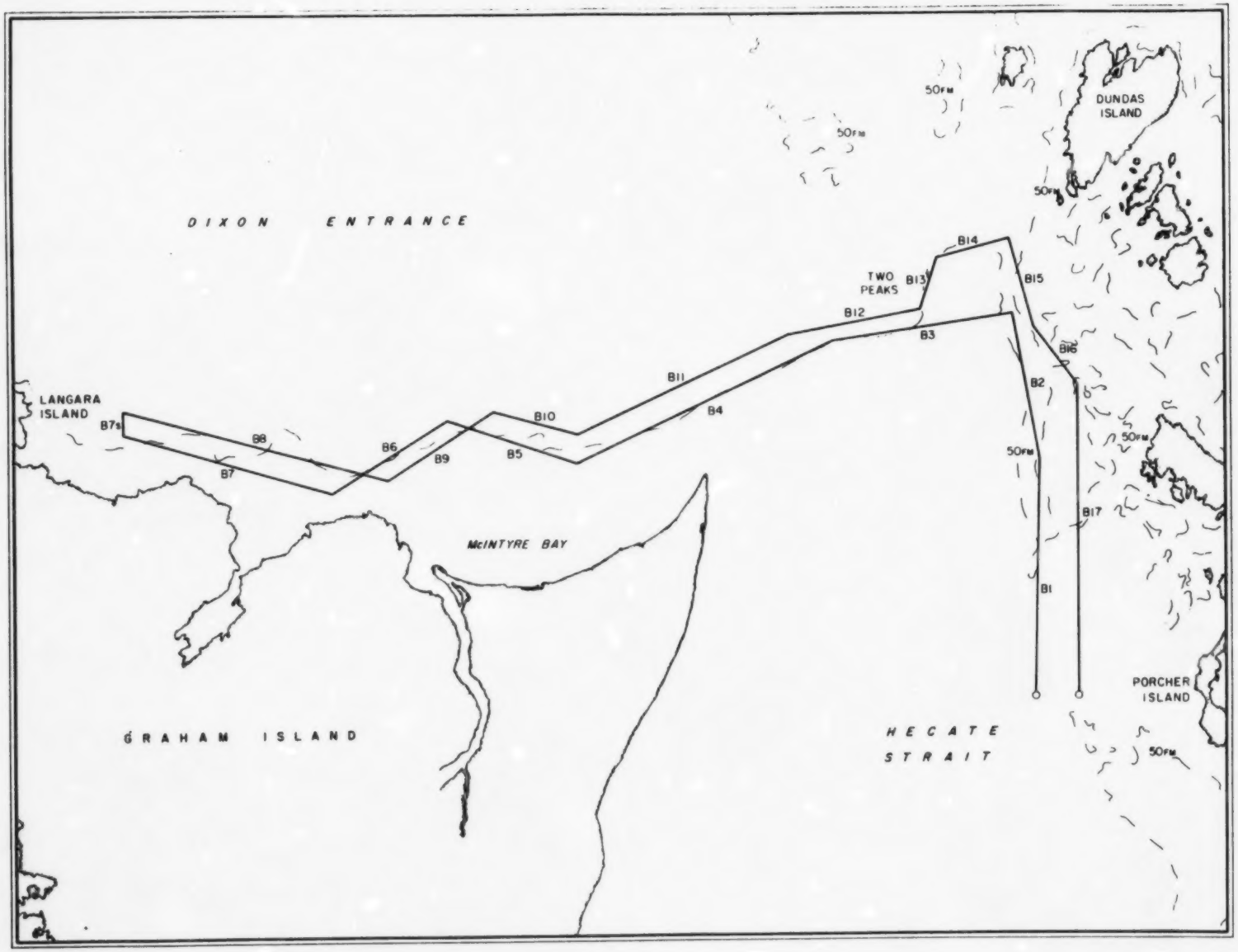

Fig. 4. Hydroacoustic transects in Dixon Entrance during J. P. TULLY cruise, December 7-18, 1989.

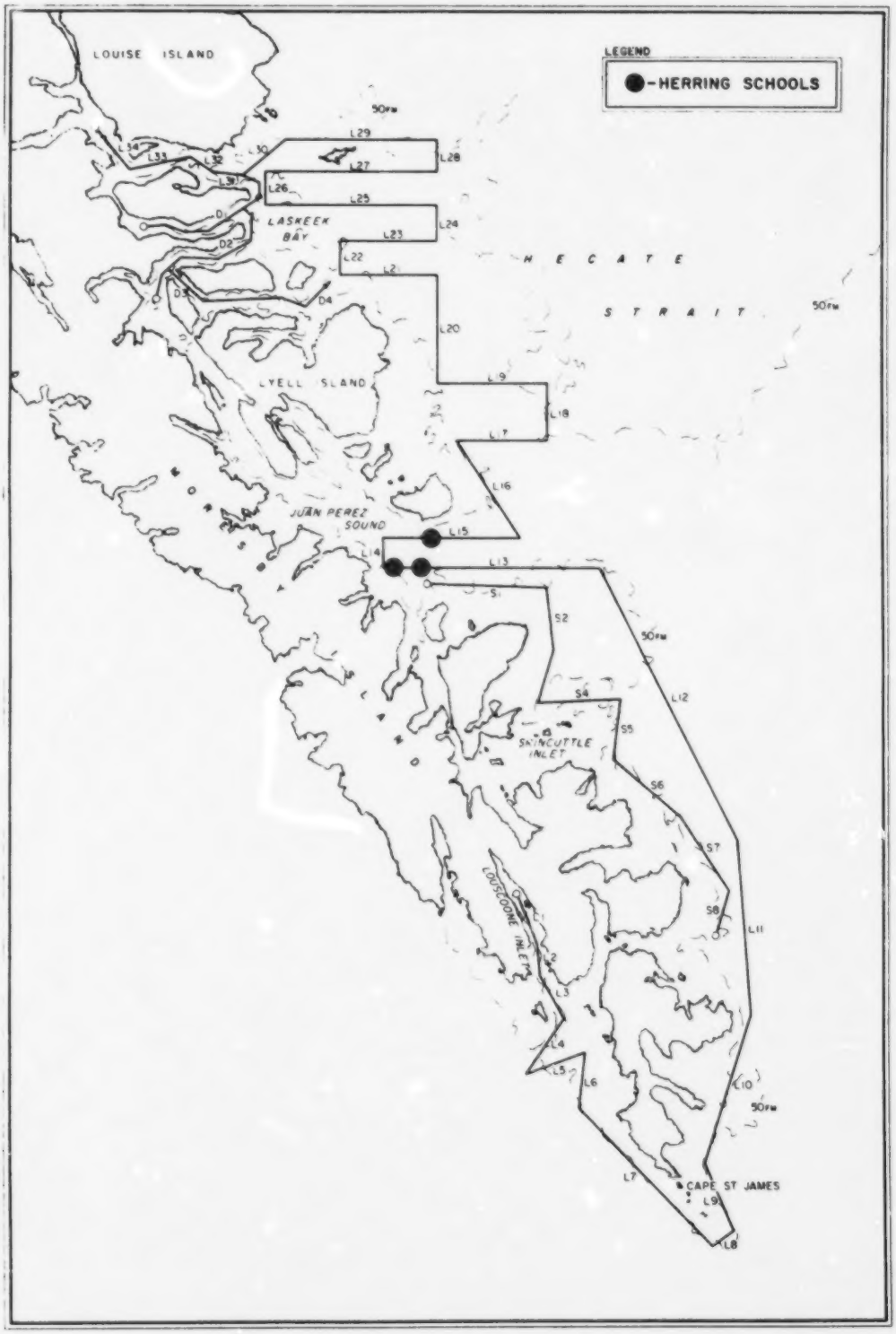

Fig. 5. Hydroacoustic transects and major herring schools greater than 500 t off South Moresby Island during J. P. TULLY cruise, December 7-18, 1988.

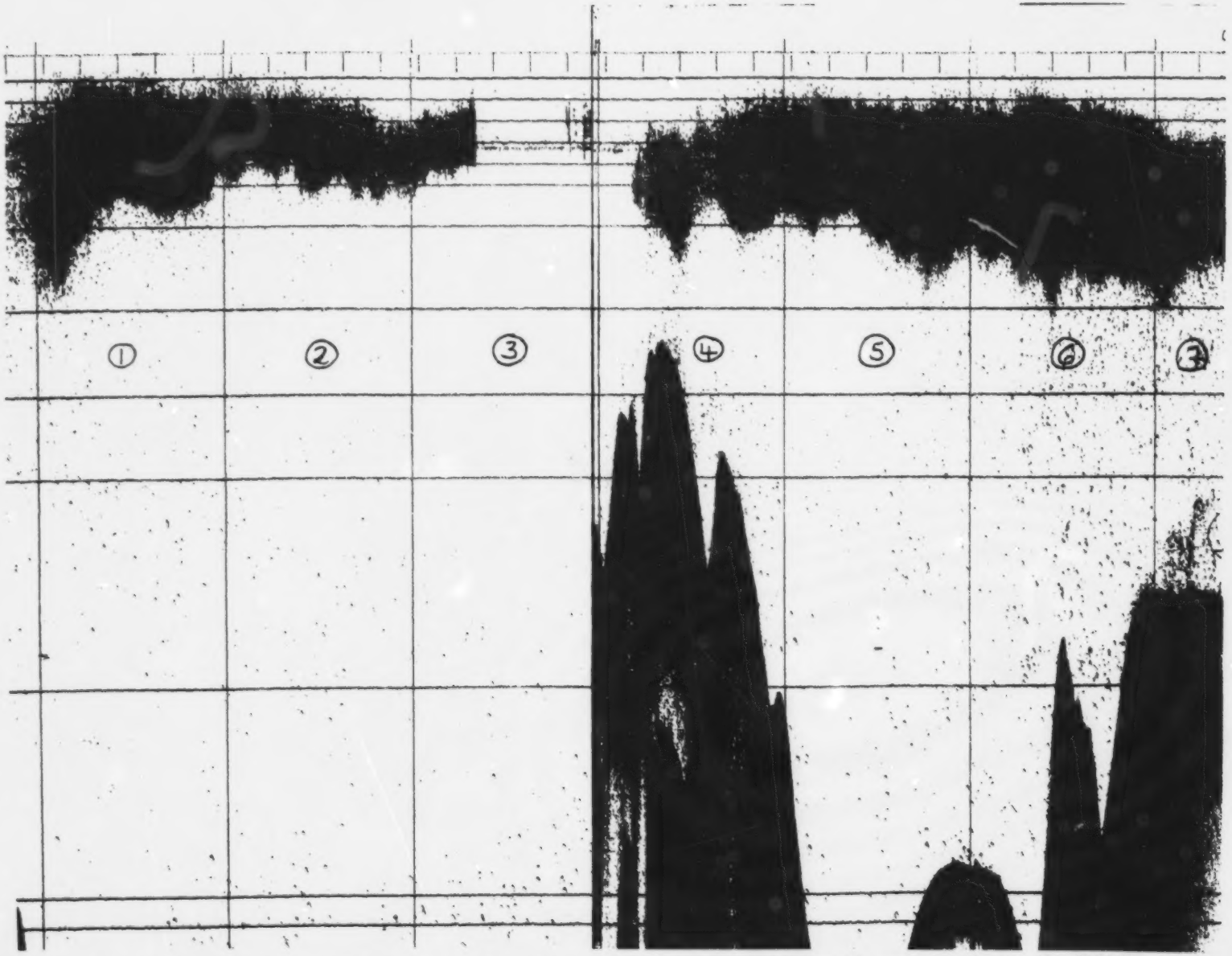

Fig. 6. Echogram intervals of Juan Perez Sound transects J3 and J4 (fourth coverage), J. P. TULLY cruise, December 14, 1988.

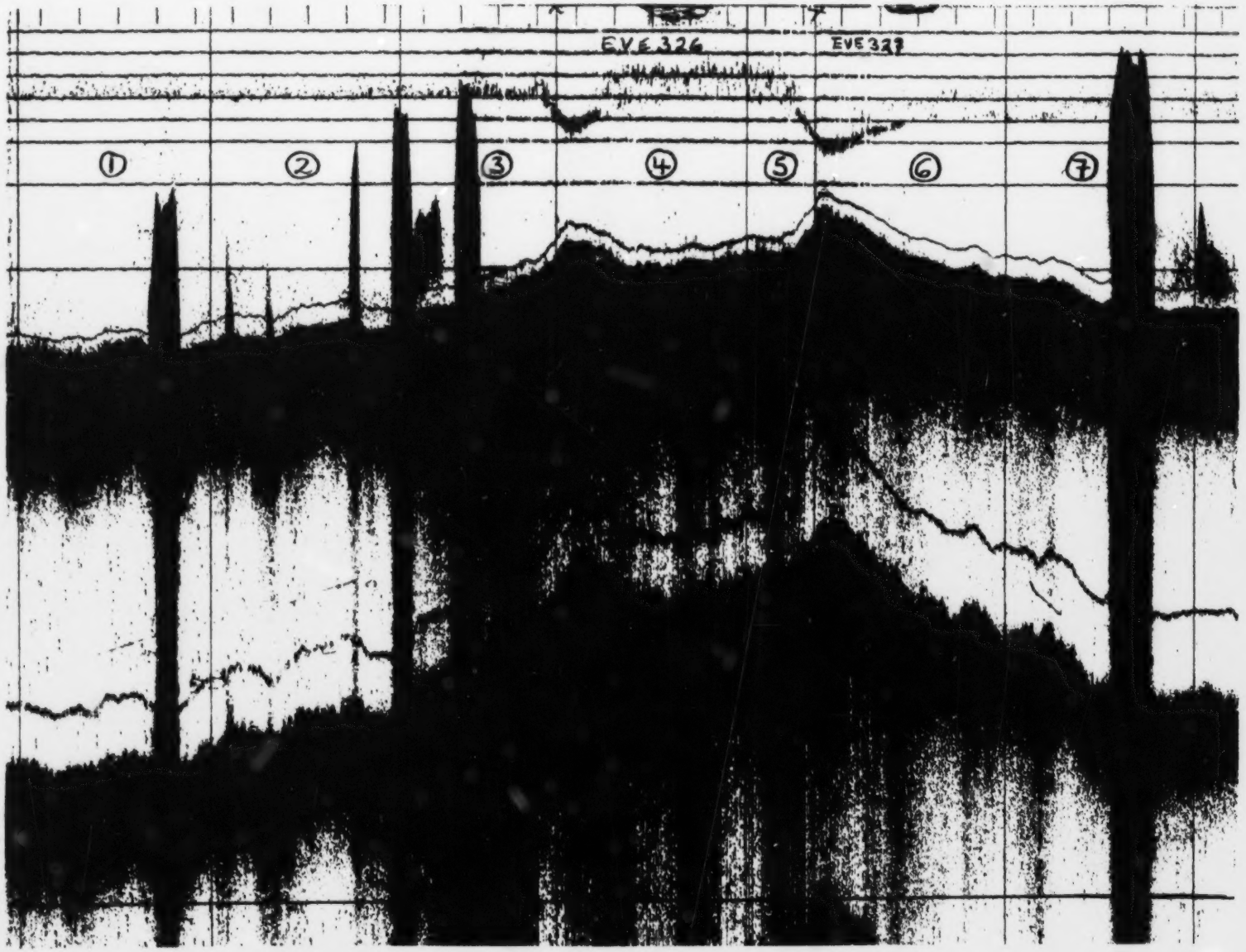

Fig. 7. Echogram intervals of Bonilla Island transects B3 and B4 (second coverage), J. P. TULLY cruise, December 16, 1988.

Appendix Table 1. Cruise schedule of the J. P. TULLY, December 7-18, 1988.

Date	Time	Activity
15 Nov	08:00	B. McCarter install hydroacoustic instruments on J. P. TULLY docked at Esquimalt
16 Nov	08:00	R. Kieser and B. McCarter check and test instruments aboard J. P. TULLY docked at Esquimalt
07 Dec	11:00	Scientific party, D. Hay, R. Kieser, B. McCarter and L. Hamer board J. P. TULLY from launch at PBS, Nanaimo
	13:00	J. P. TULLY depart Departure Bay, Nanaimo
08	15:00	Deploy towed body transducer, test and calibrate
	18:52	Commence transects A4-A7 (W. Banks Island - first coverage)
09	05:23	Commence transects 280-540 (Browning Entrance - first coverage)
10	13:51	Commence transects B2-B17 (Dixon Entrance)
11	21:53	Commence transects 520-300 (Browning Entrance - second coverage)
12	19:29	Commence transects T0-T2S (Bonilla Island - first coverage aborted due to bad weather and cable damage to towed body)
13	16:48	Commence transects J1-J5 (Juan Perez Sound - first coverage)
	19:43	Commence transects J1-J5 (Juan Perez Sound - second coverage)
	22:00	Commence transects DAR1-4,SED1-2 (Darwin Sound and Sedgwick Bay)
14	02:05	Commence transects J1-J5 (Juan Perez Sound - third coverage)
	05:05	Commence transects J1-J5 (Juan Perez Sound - fourth coverage)
	08:11	Commence transects S1-S8,L1-L12 (South Moresby Island)
	22:50	Commence transects L13-L15 (Juan Perez Sound - fifth coverage)
15	00:39	Commence transects L16-L29 (Laskeek Bay - offshore)
	07:57	Commence transects L30-L34,D1-D4 (Laskeek Bay - inshore)
	17:25	Commence transects R1-R3,H2-H16 (Hecate Strait - 50 fm edge)
16	03:25	Commence transects B1-B7 (Bonilla Island - second coverage)
	09:08	Commence transects C1-C8 (W. Banks Island - second coverage)
17	07:37	Recover towed body transducer
18	08:00	J. P. TULLY return Departure Bay, Nanaimo, offload hydroacoustic equipment via launch

Appendix Table 2. Condensed hydroacoustic biomass output of J. P. TULLY cruise, December 7-18, 1988. A biomass estimate in tonnes is given for each transect under the far right column headed 'BIOMASS' and a cumulative biomass follows for each area on the line below. Parameters are described as follows:

Current parameters	Description
ICO 88ABIO2.CON	Input control file (file name, TT: or N)
IDA 88A001.INT	Input echo integration file (file name or N)
OCB N	Output condensed biomass (file name, TT: or N)
OFB 88ABIO2.OFB	Output full biomass (file name, TT: or N)
FBO CUM	For full biomass output: SEQ, CUM, BOTH
CEV 0,99999	Choose first and last event
DEB 0	Debugging output: 0, 1, 2
ECH Y	Echo control lines: Y or N
TLL 220.4	Transmit level (dB) re 1 uPascal at 1m
RSS -103.46	Receiver sensitivity (dB) re 1 Volt/uPascal
BFF -17.55	Beam factor (dB)
REF 30.0	Reference range for receiver TVG (m)
ALP .0099	Absorption coefficient for receiver TVG (dB/m)
SOU 1490.0	Speed of sound in water (m/sec)
TAU 0.6	Pulse length (m/sec)
GAI -0.8 -12.0	Bandpass gain (dB) Adj gain - Receiver (dB)
TVC 0,0	Near range and TVG correction factor (dB)
TVG 20,0.0099 20,0.0099	Time varied gain = 20 log R + 2*ALP*R
TSS -32.0	Target strength (dB/Kg)
MME 0,100	Min. & max. accepted integration value (V^2)
DEP 5,200	Min. & max. depth strata (m)
UNI NM	Units for DPP and WID: km or nm
DPP 0.001	DIStance per ping (UNI/ping)
WID 1.0	Width of transects (nm)
AVE 1	Number of Sequences to be averaged
EVE 8 18:52 52 35.9 128 58.55	Event number, Time, Position (Lat./Long.)
DAT 08-DEC-88	Date DD-MMM-YY
TRA A4 20 24 1246 3.7 350 0.4 9	T-name Seq1 Seq2 Pit Dis Bea TimeD Speed
LOU	Zero 1. cumulative biomass output
ZER	Zero 1. and 2. cumulative biomass output
EXI	Close files, exit

Other symbols and units of measurement:

T-name	Transect name	Len	Length of transect (km)
Seq1	First sequence number	Area	Area of transect coverage (km^2)
Seq2	Last seqence number	Dep	Average bottom depth (m)
Pit	Total number of pings	Col	Av. depth of integrated column (m)
Dis	Total distance (nm)	Dcs	Distance of centroid to surface (m)
Bea	Compass bearing	Dcb	Distance of centroid to bottom (m)
TimeD	Time (hrs) to complete	Lcb	Distance of centroid from Seq1 (km)
Speed	Av. ship's speed (kn)	Vol D	Volume density (kg/m^3)
		Surf D	Surface or area density (kg/m^2)
		Biomass	Biomass of target (tonnes)

Calibration Parameters Measured at the Hydroacoustic Barge, Seattle, Washington in 1988.

Parameter	14 Jan 88	11 Mar 88	14 Jun 88
TTL	220.1	220.4	219.4
RSS	-103.96	-103.46	-104.16
REF	30.0	30.0	30.0
GAI	-0.8 -12	-0.8 -12	-0.8 -12

```
*
*EVE   1 16:30 ! cal tone 0 dB  VHS TAPE #1
*DAT 08-DEC-88
*IDA 88A001.INT
*UNI NM
*!CRU JPT88A
> Overall gain GaiOD dB:    52.976   9.472E+52
>              with TSS:    20.976   9.472E+20
*
*EVE 8 18:52 52 35.39 128 58.55 !WEST BANKS ISLAND S>N
*-------------------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   A4       20     24   1246   3.706 349.999   0.383   9.669
*WID 1.0
*DEP 5,200
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1246   6.9  12.7 189.6 186.7  45.6 143.8   3.7 4.84E-05 9.04E-03 1.15E+02
*
*EVE 9 19:15 52 39.04 128 59.61
*-------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   A5       25     58   7980  25.095 314.406   2.667   9.411
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  34  7980  46.5  86.1 162.1 154.9  39.1 156.4  22.9 1.05E-04 1.62E-02 1.40E+03
*
*EVE 13 21:55 52 56.60 129 29.26
*-------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   A6       59     80   5379  14.933 273.840   1.800   8.296
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  22  5379  27.7  51.2 187.2 160.8  37.6 117.7  18.2 9.84E-05 1.58E-02 8.10E+02
*
```

```
*EVE 14 22:51 52 57.72 129 45.52 !VHS TAPE #2
*
*EVE 17 23:43 52 57.60 129 53.99
*-------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   A7       81    146  15884  41.712 318.004   5.350   7.797
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  66 15884  77.3 143.1 104.1 101.0  48.0  55.0  40.8 8.73E-05 8.81E-03 1.26E+03
*
*DAT 09-DEC-88
*
*EVE 28 05:04 53 28.60 130 40.60 !VHS TAPE #3
*-------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   NEXT    147    150    996   1.442 247.586   0.317   4.555
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   996   2.7   4.9  84.6  84.6  48.9  47.7   1.1 7.57E-04 6.40E-02 3.17E+02
 131 31485 160.9 298.0 138.4 130.2  42.7 106.4   0.0 1.00E-04 1.31E-02 3.90E+03
*
*EVE 29 05:23 53 28.05 130 42.84 !BROWNING ENTRANCE - 1X S>N
*-------------------------------------------------------------------------

*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   280     151    163   3048   9.144 269.624   0.967   9.459
*WID 1.0
*DEP 5,200
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  13  3048  16.9  31.4  87.2  87.2  44.0  23.6  14.2 2.67E-04 2.33E-02 7.31E+02
*
*EVE 31 06:21 53 27.99 130 58.20
*TRA   280S    164    165    459   0.985  10.097   0.150   6.568
*
*EVE 32 06:30 53 28.96 130 57.91
*-------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   290     166    177   2908   8.542  88.457   0.983   8.687
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  12  2908  15.8  29.3  80.7  80.7  54.0  35.0   8.6 3.20E-05 2.58E-03 7.56E+01
*
*EVE 34 07:29 53 29.19 130 43.56
*TRA   290S    178    179    346   0.929 341.329   0.117   7.962
*
*EVE 35 07:36 53 30.07 130 44.06
```

```
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   300     180    186   1581   4.825 269.288   0.517   9.338
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1581   8.9  16.5  92.9  92.9  39.9  62.5   3.4 7.72E-05 7.18E-03 1.19E+02
*
*EVE 36 08:07 53 30.01 130 52.17
*TRA   300S    187    187    214   1.111 356.939   0.150   7.410
*
*EVE 37 08:16 53 31.12 130 52.27
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   310     188    198   2549   6.636  89.480   0.833   7.963
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11  2549  12.3  22.8  93.1  93.1  47.5  37.0   5.6 7.73E-05 7.20E-03 1.64E+02
*
*EVE 39 09:06 53 31.18 130 41.11
*TRA END
*
*EVE 41 10:31
*IDA 88A002.INT
*
*EVE 42 13:07 53 32.12 130 41.40
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   320       3     11   2249   6.499 268.325   0.750   8.665
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2249  12.0  22.3  94.0  94.0  69.8  42.3   4.8 4.14E-05 3.89E-03 8.68E+01
*
*EVE 43 13:52 53 31.93 130 52.33
*TRA   320S     12     13    500   1.085   9.440   0.200   5.424
*
*EVE 44 14:04 53 33.00 130 52.03
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   330      14     24   2732   6.192  89.168   0.883   7.009
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11  2732  11.5  21.2  78.8  78.8  51.6  36.9   6.3 2.37E-05 1.87E-03 3.97E+01
*
*EVE 45 14:38 53 32.95 130 45.45 !VHS TAPE #4
*
*EVE 46 14:57 53 33.09 130 41.61
*TRA   330S     25     26    446   0.901 345.092   0.167   5.403
*
```

```
*EVE 47 15:07 53 33.96 130 42.00
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   340      27     34   2000   6.010 269.808   0.700   8.586
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  2000  11.1  20.6  87.0  87.0  34.1  53.8   5.9 6.28E-05 5.46E-03 1.13E+02
*
*EVE 48 15:49 53 33.94 130 52.12
*TRA   340S     35     37    538   1.194   4.857   0.167   7.165
*
*EVE 49 15:59 53 35.13 130 51.95
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   350      38     45   1893   5.408  90.953   0.600   9.014
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1893  10.0  18.5  74.1  74.1  41.3  18.9   3.8 7.43E-05 5.51E-03 1.02E+02
*
*EVE 50 16:35 53 35.04 130 42.84
*TRA   350S     46     47    428   0.988 348.938   0.133   7.413
*
*EVE 51 16:43 53 36.01 130 43.16
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   360      48     54   1743   5.382 269.788   0.583   9.227
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1743  10.0  18.5  74.3  74.3  43.4  53.1   3.7 5.29E-05 3.93E-03 7.25E+01
*
*EVE 52 17:18 53 35.99 130 52.23
*TRA   360S     55     56    438   0.999   7.842   0.150   6.662
*
*EVE 53 17:27 53 36.98 130 52.00
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   370      57     64   1993   6.804  89.325   0.667  10.206
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1993  12.6  23.3  65.1  65.1  48.1  27.0   8.5 5.16E-05 3.35E-03 7.83E+01
*
*EVE 54 18:07 53 37.06 130 40.53
*TRA   370S     65     66    498   1.055 336.846   0.167   6.330
*
*EVE 55 18:17 53 38.03 130 41.23
*-----------------------------------------------------------------
```

```
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   380      67     75   2090   6.440 269.287   0.700   9.200
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2090  11.9  22.1  67.7  67.7  34.1  34.6   5.1 1.17E-04 7.94E-03 1.75E+02
*
*EVE 56 18:59 53 37.95 130 52.09
*TRA   380S     76     77    490   1.065  12.534   0.150   7.103
*
*EVE 57 19:08 53 38.99 130 51.70
*----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   390      78     88   2644   8.826  89.287   0.900   9.807
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11  2644  16.3  30.3  61.4  61.4  30.8  10.8   5.5 8.56E-05 5.26E-03 1.59E+02
*
*EVE 58 20:02 53 39.10 130 36.81
*TRA   390S     89     90    335   0.988 348.924   0.100   9.884
*
*EVE 59 20:08 53 40.07 130 37.13
*----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   400      91    102   2938   8.717 271.447   0.967   9.018
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  12  2938  16.1  29.9  60.7  60.7  28.4  24.2   8.6 1.40E-04 8.49E-03 2.54E+02
*
*EVE 60 20:52 53 39.97 130 47.84 !VHS TAPE #5
*
*EVE 61 21:06 53 40.29 130 51.84
*TRA   400S    103    104    260   0.693  14.869   0.100   6.931
*
*EVE 62 21:12 53 40.96 130 51.54
*----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   410      105    117   3069   9.790  90.000   1.017   9.629
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  13  3069  18.1  33.6  58.2  58.2  26.9   7.6   5.7 1.29E-04 7.51E-03 2.52E+02
*
*EVE 63 22:13 53 40.96 130 35.01
*TRA   410S    118    119    385   1.030   0.663   0.100  10.300
*
*EVE 64 22:19 53 41.99 130 34.99
*----------------------------------------------------------------
```

```
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   420     120    132   3184  10.026 271.544   1.100   9.114
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  13  3184  18.6  34.4  64.7  64.7  26.4  23.8  11.3 1.17E-04 7.58E-03 2.61E+02
*
*EVE 65 23:25 53 42.26 130 51.92
*TRA   420S    133    134    305   0.746  11.906   0.167   4.476
*
*EVE 65.5 23:35 53 42.99 130 51.66
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   430     135    147   3170  10.054  89.430   1.000  10.054
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  13  3170  18.6  34.5  72.9  72.9  45.0  30.2  10.3 5.69E-05 4.15E-03 1.43E+02
*
*DAT 10-DEC-88
*
*EVE 66 00:35 53 43.09 130 34.67
*TRA   430S    148    149    432   1.062 338.769   0.133   7.965
*
*EVE 67 00:43 53 44.08 130 35.32
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   440     150    162   3228   9.867 269.362   1.083   9.108
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  13  3228  18.3  33.8  79.6  79.6  30.8  50.6   9.7 1.09E-04 8.64E-03 2.92E+02
*
*EVE 68 01:48 53 43.97 130 52.00
*TRA   440S    163    164    393   1.062 356.813   0.117   9.099
*
*EVE 69 01:55  53 45.03 130 52.10
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   450     165    178   3298  10.224  90.280   1.117   9.156
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  14  3298  18.9  35.1  83.2  83.2  35.3  34.4   5.1 7.80E-05 6.48E-03 2.27E+02
*
*EVE 70 03:02 53 44.98 130 34.81
*TRA   450S    179    180    331   1.022 356.689   0.117   8.757
*
*EVE 71 03:09 53 46.0 130 34.91 !VHS TAPE #6
*-----------------------------------------------------------------
```

```
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   460     181    195   3572  11.473 270.000   1.183   9.695
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  15  3572  21.2  39.4  77.7  77.7  29.3  39.0  15.7 1.55E-04 1.20E-02 4.74E+02
*
*EVE 72 04:20 53 46.00 130 54.32
*TRA   460S    196    197    463   1.046  17.083   0.167   6.277
*
*EVE 73 04:30 53 47.00 130 53.80
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   470     198    207   2474   7.722  89.925   0.817   9.456
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  10  2474  14.3  26.5  86.1  86.1  35.6  50.9   6.5 3.77E-05 3.24E-03 8.59E+01
*
*EVE 74 05:19 53 47.01 130 40.73
*TRA   470S    208    210    689   1.109 331.005   0.233   4.753
*
*EVE 75 05:33 53 47.98 130 41.64
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   480     211    222   2850   8.617 269.933   0.950   9.070
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  12  2850  16.0  29.6  73.6  73.6  39.9  28.8   5.0 1.62E-04 1.19E-02 3.52E+02
*
*EVE 76 06:30 53 47.97 130 56.23
*TRA   480S    223    225    545   1.113  20.831   0.183   6.070
*
*EVE 77 06:41 53 49.01 130 55.56
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   490     226    235   2263   6.895  90.084   0.750   9.194
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  10  2263  12.8  23.6  64.5  64.5  39.6  23.0   8.3 1.19E-04 7.70E-03 1.82E+02
*
*EVE 78 07:26 53 49.00 130 43.88
*TRA   490S    236    237    455   1.055 347.401   0.150   7.036
*
*EVE 79 07:35 53 50.03 130 44.27
*-----------------------------------------------------------------
```

```
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   500     238    246   2241   7.512 269.771   0.817   9.199
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2241  13.9  25.8  55.8  55.8  45.9  10.3   7.7 3.86E-04 2.15E-02 5.54E+02
*
*EVE 80 08:24 53 50.00 130 57.00
*TRA   500S    247    248    498   1.000   0.000   0.083  12.000
*
*EVE 81 08:29 53 51.00 130 57.00
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   510     249    255   1611   5.280  89.240   0.567   9.318
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1611   9.8  18.1  59.6  59.6  48.8   7.7   8.6 4.52E-04 2.70E-02 4.88E+02
*
*EVE 82 09:03 53 51.07 130 48.05
*TRA   510S    256    257    288   0.900   0.378   0.083  10.800
*
*EVE 83 09:08 53 51.97 130 48.04
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   520     258    269   2925   8.221 270.420   0.983   8.360
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  12  2925  15.2  28.2  45.5  45.5  32.6  12.3   6.0 3.08E-04 1.40E-02 3.95E+02
*
*EVE 84 09:37 53 51.97 130 54.99 !VHS TAPE #7
*
*EVE 85 10:07 53 52.03 131 01.98
*TRA   520S    270    271    397   0.950   0.716   0.133   7.125
*
*EVE 86 10:15 53 52.98 131 01.96
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   530     272    282   2543   7.098  89.032   0.850   8.350
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11  2543  13.1  24.3  48.3  48.3  26.6  19.2   5.3 1.21E-04 5.82E-03 1.42E+02
*
*EVE 87 11:06 53 53.10 130 49.92
*TRA   530S    283    283    249   1.144 336.632   0.100  11.439
*
*EVE 88 11:12 53 54.15 130 50.69
*-----------------------------------------------------------------
```

```
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   540     284    293   2289   6.076 268.586   0.733   8.286
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  10   2289  11.3  20.8  43.0  43.0  26.8  18.1   6.9 1.49E-04 6.39E-03 1.33E+02
 288  69085 385.7 714.4  71.3  71.3  38.2  25.7   0.0 1.21E-04 8.61E-03 6.15E+03
*
*EVE 89 11:56 53 54.00 131 01:84
*TRA END
*
*EVE 90 13:49
*IDA 88A003.INT
*
*EVE 92 13:51 54 13.59 131 03.09 !DIXON ENTRANCE E>W
*-------------------------------------------------------------------------------

*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B2        4     14   2509   6.309 349.821   0.833   7.571
*WID 1.0
*DEP 5,200
*ZER
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11   2509  11.7  21.6  60.2  60.2  50.7  13.9   6.4 1.26E-04 7.59E-03 1.64E+02
*
*EVE 93 14:27 54 17.90 131 04.30 !POLLOCK?
*
*EVE 94 14:41 54 19.80 131 05:19
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B3       15     31   4080  11.885 261.142   1.350   8.803
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  17   4080  22.0  40.8  52.5  52.5  28.9  26.0   9.3 1.79E-04 9.41E-03 3.84E+02
*
*EVE 95 16:02 54 17.97 131 25.13
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B4       32     35   1000   5.470 245.712   0.533  10.256
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   1000  10.1  18.8  58.8  58.8  22.7  36.0   4.8 7.90E-05 4.65E-03 8.72E+01
*
*EVE 95.5 16:34 54 15.72 131 33.67 !COURSE ALTERATION
*-----------------------------------------------------------------
```

```
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B4       36     47   2826   8.634 244.479   0.983   8.781
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  12  2826  16.0  29.6  87.3  87.3  42.4  44.4   7.5 6.30E-05 5.50E-03 1.63E+02
*
*EVE 96 17:04 54 15.44 131 40.91 !VHS TAPE #8
*
*EVE 97 17:33 54 12.00 131 47.00 !COURSE ALTERATION
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B4       48     56   2241   5.005 246.944   0.517   9.687
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2241   9.3  17.2  63.5  63.5  31.6  26.6   5.4 1.11E-04 7.06E-03 1.21E+02
*
*EVE 98 18:04 54 10.04 131 54.87
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B5       57     68   2881   9.459 287.726   1.000   9.459
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  12  2881  17.5  32.4  62.4  62.4  41.6  25.9  10.6 1.69E-04 1.05E-02 3.42E+02
*
*EVE 99 19:04 54 12.92 132 10.27
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B6       69     76   2000   8.746 236.635   0.883   9.901
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  2000  16.2  30.0  73.4  73.4  36.5  37.3   7.8 1.30E-04 9.56E-03 2.87E+02
*
*EVE 100 19:57 54 08.11 132 22.75
*TRA END
*
*DAT 11-DEC-88
*
*EVE 102
*IDA 88A004.INT
*
*EVE 102 08:35 54 08.16 132 24.10
*TRA   B7        4     21   4489  13.936 286.122   1.483   9.395
*
*EVE 103 09:53 54 11.49 132 44.33 !RESET BOT TRACKING
*
*EVE 104 10:04 54 12.03 132 46.97
*TRA   B7S      22     23    500   1.538   5.893   0.183   8.390
*
*EVE 105 10:15 54 13.56 132 46.70 !DIXON ENTRANCE W>E
```

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*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B8       24     48   6246  18.517 104.193   2.033   9.107
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  25  6246  34.3  63.5  90.0  89.9  47.2  77.6  10.5 1.27E-04 1.14E-02 7.23E+02
*
*EVE 106 11:51 54 10.04 132 23.17 !VHS TAPE #9
*
*EVE 107 12:17 54 09.02 132 16.02
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B9       49     58   2490   8.333  61.629   0.833  10.000
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  10  2490  15.4  28.6  57.6  57.6  23.5  35.4   7.3 2.24E-04 1.29E-02 3.68E+02
*
*EVE 108 13:07 54 12.98 132 03.49
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B10      59     63   1245   4.174 107.423   0.467   8.945
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1245   7.7  14.3  90.4  90.4  32.9  59.0   4.7 2.21E-04 2.00E-02 2.86E+02
*
*EVE 109 13:28 54 12.59 131 58.08 !LORAN ADJUSTMENT
*
*EVE 110 13:31 54 12.08 131 57.25 !LORAN ADJUSTMENT
*
*EVE 111 13:35 54 11.73 131 56.68
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B11      64     84   5229  16.890  65.030   1.750   9.652
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  21  5229  31.3  57.9 110.6 110.6  31.4  70.5  10.0 8.58E-05 9.50E-03 5.50E+02
*
*EVE 112 15:20 54 18.86 131 30.47 !TWO PEAKS
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B12      85     91   1743   5.411  82.140   0.600   9.018
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1743  10.0  18.6 127.8 127.8  54.7  72.9   5.3 9.88E-05 1.26E-02 2.34E+02
*
*EVE 113 15:56 54 19.60 131 21.28 !WHALE WATCH LOOP
*TRA   B12      92     94    750   1.137  78.330   0.250   4.549
```

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*
*EVE 114 16:11 54 19.83 131 19.37 !END WHALE WATCH LOOP
*TRA   B12      95     99   1217   2.588  86.456   0.317   8.173
*
*EVE 115 16:30 54 19.99 131 14.94 !LOOP TO AVOID TRAFFIC
*TRA   B12     100    102    747   0.354   8.501   0.267   1.327
*
*EVE 116 16:46 54 20.34 131 14.85
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B13     103    108   1494   3.936  17.212   0.500   7.873
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6   1494   7.3  13.5  51.5  51.5  36.8  10.5   1.8 5.72E-04 2.95E-02 3.98E+02
*
*EVE 117 16:52 54 20.90 131 14.56 !RESUME SPEED
*
*EVE 118 17:16 54 24.10 131 12.85
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B14     109    115   1695   4.620  79.274   0.600   7.701
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7   1695   8.6  15.8  68.2  68.2  38.7  29.7   3.6 3.14E-04 2.14E-02 3.40E+02
*
*EVE 119 17:52 54 24.96 131 05.05
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B15     116    125   2492   6.277 163.557   0.833   7.532
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  10   2492  11.6  21.5  62.4  62.4  43.5  33.0   2.7 1.50E-04 9.36E-03 2.02E+02
*
*EVE 120 18:06 54 23.06 131 04.22 !VHS TAPE #10
*
*EVE 121 18:42 54 18.94 131 02.00
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B16     126    131   1494   4.313 137.305   0.550   7.842
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6   1494   8.0  14.8  53.6  53.6  46.8  15.2   4.3 2.14E-04 1.15E-02 1.69E+02
*
*EVE 122 19:15 54 15.77 130 56.99
*-----------------------------------------------------------------
```

```
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B17     132    165   8137  23.794 178.983   2.633   9.036
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  34  8137  44.1  81.6  46.1  46.1  26.2  21.9  18.3 8.26E-05 3.80E-03 3.10E+02
 204 49802 281.1 520.6  72.1  72.1  37.6  42.4   0.0 1.37E-04 9.85E-03 5.13E+03

*
*EVE 123 19:20 54 15.15 130 56.54 !LORAN ADJUSTMENT
*
*EVE 124 21:00 54 00.00 130 56.87 !UPDATE
*
*EVE 125 21:53 53 51.98 130 56.27 !BROWNING ENTRANCE - 2X N>S
*-------------------------------------------------------------------------------

*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   520     166    172   1709   4.877  90.352   0.567   8.606
*WID 1.0
*DEP 5,200
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1709   9.0  16.7  51.7  51.7  25.9  20.1   0.0 6.55E-05 3.39E-03 5.66E+01
*
*EVE 126 22:27 53 51.95 130 48.00
*TRA   520S    173    174    384   0.976 197.590   0.133   7.317
*
*EVE 127 22:35 53 51.02 130 48.50
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   510     175    181   1652   5.155 267.331   0.550   9.373
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1652   9.5  17.7  58.8  58.8  25.6  31.6   4.7 1.60E-04 9.40E-03 1.66E+02
*
*EVE 128 23:08 53 50.78 130 57.23
*TRA   510S    182    183    499   0.792 170.139   0.117   6.786
*
*EVE 129 23:15 53 50.00 130 57.00
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   500     184    193   2422   7.478  90.766   0.867   8.628
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  10  2422  13.8  25.6  58.4  58.4  29.9  25.1   8.7 5.94E-05 3.47E-03 8.90E+01
*
*DAT 12-DEC-88
*
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```
*EVE 130 00:07 53 49.90 130 44.33
*TRA   500S    194    195    329   0.873 175.348   0.100   8.729
*
*EVE 140 00:13 53 49.03 130 44.21
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   490     196    204   2080   6.985 269.345   0.700   9.978
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2080  12.9  24.0  67.5  67.5  35.3  30.3   5.3 2.10E-04 1.42E-02 3.40E+02
*
*EVE 141 00:15 53 49.06 130 44.74 !VHS TAPE #11
*
*EVE 142 00:55 53 48.95 130 56.04
*TRA   490S    205    206    350   0.940 179.638   0.117   8.057
*
*EVE 143 01:02 53 48.01 130 56.03
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   480     207    219   3069   8.847  90.129   1.033   8.562
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  13  3069  16.4  30.3  78.8  78.8  41.3  36.9   7.3 9.95E-05 7.84E-03 2.38E+02
*
*EVE 144 02:04 53 47.99 130 41.05
*TRA   480S    220    221    358   0.847 172.772   0.117   7.258
*
*EVE 145 02:11 53 47.15 130 40.87
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   470     222    231   2346   7.613 268.269   0.800   9.516
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  10  2346  14.1  26.1  89.6  89.6  29.9  57.6   7.9 8.40E-05 7.53E-03 1.97E+02
*
*EVE 146 02:59 53 46.92 130 53.75
*TRA   470S    232    233    369   0.870 180.392   0.100   8.700
*
*EVE 147 03:05 53 46.05 130 53.76
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   460     234    247   3764  11.207  90.461   1.200   9.339
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  14  3764  20.8  38.4  82.8  82.8  26.1  63.7   9.2 1.23E-04 1.02E-02 3.93E+02
*
*EVE 148 04:17 53 45.96 130 34.80 !CHANGE SIMRAD SOUNDER PAPER
*TRA   460S    248    250    653   0.997 190.576   0.183   5.437
```

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*
*EVE 149 04:28 53 44.98 130 35.11
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   450     251    263   3180   9.709 270.000   1.067   9.103
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  13  3180  18.0  33.3  86.8  86.8  32.6  55.8  10.0 1.03E-04 8.93E-03 2.97E+02
*
*EVE 150 05:32 53 44.98 130 51.53
*TRA END
*
*EVE 150.5 05:42
*IDA 88A005.INT
*
*EVE 151 05:44 53 44.03 130 51.82
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   440       2     14   3147   9.831  90.408   1.050   9.363
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  13  3147  18.2  33.7  79.6  79.6  23.7  30.5   4.2 1.00E-04 7.97E-03 2.69E+02
*
*EVE 152 05:29 53 43.99 130 40.10 !VHS TAPE #12
*
*EVE 153 06:47 53 43.96 130 35.20
*TRA   440S      15     17    570   0.960 178.578   0.183   5.238
*
*EVE 154 06:58 53 43.00 130 35.16
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   430       18     30   3159   9.865 270.000   1.033   9.547
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  13  3159  18.3  33.8  72.6  72.6  27.0  24.5  14.2 2.10E-04 1.52E-02 5.15E+02
*
*EVE 155 08:00 53 43.00 130 51.83
*TRA   430S      31     32    428   1.002 176.279   0.133   7.516
*
*EVE 156 08:08 53 42.00 130 51.72
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   420       33     46   3280   9.899  90.232   1.133   8.734
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  14  3280  18.3  34.0  67.0  67.0  75.4  15.6   8.8 3.68E-04 2.47E-02 8.38E+02
*
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*EVE 157 09:16 53 41.96 130 35.00
*TRA   420S     47     48    370   1.000 188.165   0.117   8.572
*
*EVE 158 09:23 53 40.97 130 35.24
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   410      49     61   3084   9.784 270.117   1.000   9.784
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  13  3084  18.1  33.6  59.6  59.6  36.4  24.2  10.4 2.49E-04 1.49E-02 4.99E+02
*
*EVE 159 10:23 53 40.99 130 51.76
*TRA   410S     62     63    446   0.983 175.507   0.150   6.554
*
*EVE 160 10:32 53 40.01 130 51.63
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   400      64     75   2828   8.455  89.864   0.967   8.746
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  12  2828  15.7  29.0  67.0  67.0  45.6  19.9   6.9 1.77E-04 1.18E-02 3.43E+02
*
*EVE 161 11:30 53 40.03 130 37.36
*TRA   400S     76     77    484   1.071 177.155   0.133   8.035
*
*EVE 162 11:38 53 38.96 130 37.27
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   390      78     88   2630   8.731 269.803   0.900   9.701
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11  2630  16.2  29.9  67.2  67.2  41.3  27.5   9.4 1.68E-04 1.13E-02 3.38E+02
*
*EVE 163 12:32 53 38.93 130 52.00
*TRA   390S     89     90    329   0.931 182.907   0.117   7.981
*
*EVE 164 12:39 53 38.00 130 52.08
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   380      91     99   2213   6.577  91.133   0.733   8.969
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2213  12.2  22.6  68.0  68.0  36.1  31.3   6.4 1.63E-04 1.11E-02 2.50E+02
*
*EVE 165 12:40 53 39.96 130 51.93 !VHS TAPE #13
*
*EVE 166 13:23 53 37.87 130 40.99
*TRA   380S    100    101    498   0.952 203.894   0.167   5.711
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*
*EVE 167 13:33 53 37.00 130 41.64
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   370     102    109   1878   6.134 269.908   0.633   9.685
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1878  11.4  21.0  73.6  73.6  43.1  44.7   4.9 8.11E-05 5.97E-03 1.25E+02
*
*EVE 168 14:11 53 36.99 130 51.98
*TRA   370S    110    111    351   0.971 182.789   0.117   8.324
*
*EVE 169 14:18 53 36.02 130 52.06
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   360     112    119   1817   5.325  91.507   0.600   8.874
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1817   9.9  18.3  74.5  74.5  28.6  54.2   5.6 1.94E-04 1.44E-02 2.63E+02
*
*EVE 170 14:54 53 35.88 130 43.09
*TRA   360S    120    121    285   0.756 172.774   0.100   7.560
*
*EVE 171 15:00 53 35.13 130 42.93
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   350     122    128   1638   5.357 268.183   0.550   9.740
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1638   9.9  18.4  87.1  87.1  37.5  83.3   2.3 1.22E-04 1.06E-02 1.96E+02
*
*EVE 172 15:33 53 34.96 130 51.95
*TRA   350S    129    130    317   0.637 188.585   0.100   6.373
*
*EVE 173 15:39 53 34.33 130 52.11
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   340     131    138   1840   5.929  92.996   0.633   9.361
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1840  11.0  20.3  86.6  86.6  28.5  44.7   3.8 9.36E-05 8.11E-03 1.65E+02
*
*EVE 174 16:17 53 34.02 130 42.14
*TRA   340S    139    140    427   1.029 164.264   0.150   6.858
*
*EVE 175 16:26 53 33.03 130 41.67
*-------------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   330     141    149   2009   6.375 269.731   0.667   9.562
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2009  11.8  21.9  94.4  94.4  34.2  65.4   4.6 8.28E-05 7.82E-03 1.71E+02
*
*EVE 176 17:06 53 33.00 130 52.40
*TRA   330S    150    151    400   1.079 169.190   0.133   8.093
*
*EVE 177 17:14 53 31.94 130 52.06
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   320     152    160   2049   6.621  89.481   0.667   9.932
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2049  12.3  22.7  94.1  94.1  36.9  44.6   4.3 1.03E-04 9.73E-03 2.21E+02
*
*EVE 178 17:54 53 32.00 130 40.92
*TRA   320S    161    163    499   1.020 180.000   0.167   6.119
*
*EVE 179 18:04 53 30.98 130 40.92
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   310     164    173   2463   6.600 270.000   0.767   8.609
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  10  2463  12.2  22.6  95.9  95.9  31.9  50.0   8.6 6.59E-05 6.32E-03 1.43E+02
*
*EVE 180 18:50 53 30.98 130 52.02
*TRA   310S    174    174    200   1.052 176.736   0.150   7.012
*
*EVE 181 18:59 53 29.93 130 51.92 !VHS TAPE #14
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   300     175    180   1500   4.690  87.922   0.500   9.380
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1500   8.7  16.1  90.6  90.6  31.4  70.0   5.4 8.04E-05 7.29E-03 1.17E+02
 233 55757 318.6 590.1  76.0  76.0  39.1  37.0   0.0 1.39E-04 1.06E-02 6.23E+03
*
*EVE 182 19:29 53 30.10 130 44.04 !BONILLA ISLAND - 1X
*-----------------------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit      Dis      Bea   TimeD   Speed
*TRA   T0      181    184    792    2.032  349.877   0.267   7.618
*WID 1.2
*DEP 5,200
*ZER
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4    792   3.8   8.4  95.5  95.5  41.9  56.6   1.7 6.58E-05 6.28E-03 5.25E+01
*
*EVE 183 19:45 53 32.10 130 44.64 !HERRING SCHOOL
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit      Dis      Bea   TimeD   Speed
*TRA   T1      185    192   1767    4.045  301.273   0.550   7.355
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8   1767   7.5  16.6  71.9  71.9  21.9  40.5   3.8 6.46E-04 4.65E-02 7.73E+02
*
*EVE 184 20:18 53 34.20 130 50.46
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit      Dis      Bea   TimeD   Speed
*TRA   T1S     193    194    500    0.975  283.039   0.167   5.849
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   2    500   1.8   4.0  37.3  37.3  21.6  15.8   0.9 5.44E-05 2.03E-03 8.15E+00
*
*EVE 185 20:28 53 34.42 130 52.06
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit      Dis      Bea   TimeD   Speed
*TRA   T2      195    199   1250    4.753  128.054   0.433  10.969
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5   1250   8.8  19.6  65.4  65.4  27.0  40.2   4.7 6.06E-05 3.97E-03 7.76E+01
*
*EVE 186 20:54 53 31.49 130 45.76 !HERRING SCHOOL
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit      Dis      Bea   TimeD   Speed
*TRA   T2S     200    204   1032    1.487  239.259   0.433   3.432
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5   1032   2.8   6.1 372.4 165.8  67.3  58.8   0.4 9.51E-04 1.58E-01 9.65E+02
  24   5341  24.6  54.7 104.3  81.2  46.0  50.2   0.0 4.23E-04 3.43E-02 1.88E+03
*
*EVE 187 21:20 53 30.73 130 47.91
*TRA END
*
*DAT 13-DEC-88
*
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*EVE 188 15:39
*IDA 88A006.INT
*
*EVE 189 16:16
*
*EVE 190 15:48 52 31.09 131 24.55 !JUAN PEREZ SOUND - 1X
*-------------------------------------------------------------------------------

*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J1       11     17   1468   4.540 309.373   0.467   9.728
*WID 0.5
*DEP 5,100
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1468   8.4   7.8 180.8  93.4  73.1 106.4   5.8 6.45E-04 6.03E-02 4.69E+02
*
*EVE 191 17:16 52 33.97 131 30.32
*TRA   J1S      18     18    223   0.473 240.880   0.083   5.672
*
*EVE 192 17:21 52 33.74 131 31.00
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J2       19     24   1452   4.757 126.211   0.483   9.841
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1452   8.8   8.2 206.9  95.0  32.0 176.5   4.9 3.98E-04 3.78E-02 3.08E+02
*
*EVE 193 17:50 52 30.93 131 24.69
*----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J3       25     28    890   3.086  71.486   0.317   9.747
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   890   5.7   5.3 213.1  89.5  16.4 201.7   2.4 8.06E-04 7.21E-02 3.82E+02
*
*EVE 194 18:09 52 31.91 131 19.88
*TRA   J3S      29     31    523   0.939 220.871   0.167   5.633
*
*EVE 195 18:19 52 31.20 131 20.89
*----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J4       32     35    825   2.560 251.556   0.283   9.036
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   825   4.7   4.4 190.5  95.0  17.0 173.5   2.2 8.97E-04 8.52E-02 3.74E+02
*
*EVE 196 18:36 52 30.39 131 24.88
```

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*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J5       36     42   1676   5.129 305.660   0.533   9.616
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1676   9.5   8.8 190.5  95.0  22.7 167.8   6.0 4.52E-04 4.29E-02 3.78E+02
  28  6311  37.2  34.4 195.7  93.8  34.2 162.0   0.0 5.92E-04 5.55E-02 1.91E+03
*
*EVE 197 19:08 52 33.38 131 31.73
*TRA   J6       43     48   1494   5.000 120.931   0.500   9.999
*
*EVE 198 19:38 52 30.81 131 24.68 !MANUAL BOTTOM TRACKING 200 M
*TRA   J6S      49     49    249   0.405  15.641   0.083   4.860
*
*EVE 199 19:43 52 31.20 131 24.5 !JUAN PEREZ SOUND - 2X
*-----------------------------------------------------------------

*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J1       50     55   1463   4.601 308.272   0.483   9.520
*WID 0.5
*DEP 5,100
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1463   8.5   7.9 200.2  95.0  65.1 135.1   6.6 5.01E-04 4.76E-02 3.76E+02
*
*EVE 200 19:45 52 31.33 131 24.83 !VHS TAPE #15
*
*EVE 201 20:12 52 34.05 131 30.44
*TRA   J1S      56     56    249   0.578 200.919   0.100   5.783
*
*EVE 202 20:18 52 33.51 131 30.78
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J2       57     62   1307   4.483 126.556   0.433  10.345
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1307   8.3   7.7 200.2  95.0  21.4 178.8   1.2 8.71E-04 8.27E-02 6.36E+02
*
*EVE 203 20:44 52 30.84 131 24.86
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J3       63     66    973   3.048  70.450   0.317   9.625
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   973   5.6   5.2 200.2  95.0  16.0 184.2   2.4 3.28E-04 3.12E-02 1.63E+02
*
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*EVE 204 21:03 52 31.86 131 20.14
*TRA   J3S      67     67    192   0.484 172.791   0.067   7.257
*
*EVE 205 21:07 52 31.38 131 20.04
*-------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J4       68     72   1077   3.236 251.069   0.350   9.246
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1077   6.0   5.5 200.2  95.0  24.1 176.1   2.7 3.64E-04 3.46E-02 1.92E+02
*
*EVE 206 21:28 52 30.33 131 25.07
*-------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J5       73     79   1545   4.843 305.757   0.533   9.080
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1545   9.0   8.3 200.2  95.0  22.0 178.2   6.7 5.88E-04 5.59E-02 4.64E+02
  28  6365  37.4  34.7 200.2  95.0  30.3 169.9   0.0 5.56E-04 5.28E-02 1.83E+03
*
*EVE 207 22:00 52 33.16 131 31.53 !DARWIN INLET
*-------------------------------------------------------------------------------

*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   DAR1     80     93   3486   4.301 298.470   1.167   3.686
*WID 0.5
*DEP 5,40
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  14  3486   8.0   7.4 200.2  35.0  28.7 171.5   4.4 2.71E-03 9.48E-02 7.00E+02
*
*EVE 208 23:10 52 35.21 131 37.75
*-------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   DAR2     94     95    383   0.718 139.987   0.100   7.181
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   2   383   1.3   1.2 200.2  35.0  34.8 165.4   0.7 4.97E-03 1.74E-01 2.14E+02
*
*EVE 209 23:16 52 34.66 131 36.99 !180 TURN
*-------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   DAR3     96     98    749   1.696 112.910   0.250   6.783
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   3   749   3.1   2.9 200.2  35.0  34.7 165.5   1.6 4.36E-03 1.52E-01 4.44E+02
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*
*EVE 210 23:31 52 34.00 131 34.42
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   DAR4     99    104   1347   2.897  78.451   0.667   4.346
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1347   5.4   5.0 200.2  35.0  30.4 169.8   2.7 3.71E-03 1.30E-01 6.45E+02
*
*DAT 14-DEC-88
*
*EVE 211 00:11 52 34.58 131 29.75 !SEDGEWICK BAY
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   SED1    105    112   1925   4.322 324.529   0.467   9.262
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1925   8.0   7.4 200.2  35.0  20.1 180.1   2.6 1.24E-02 4.33E-01 3.21E+03
*
*EVE 212 00:39 52 38.10 131 33.88 !HERRING SCHOOL
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   SED2    113    116   1000   3.165 151.834   0.433   7.303
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4  1000   5.9   5.4 200.2  35.0  34.9 165.3   2.5 4.70E-03 1.64E-01 8.92E+02
*
*EVE 213 01:05 52 35.31 131 31.42
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   SED2    117    124   1993   3.156 161.928   0.600   5.259
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1993   5.8   5.4 200.2  35.0  20.1 180.1   1.8 9.55E-03 3.34E-01 1.81E+03
  45 10883  37.5  34.7 200.2  35.0  24.6 175.6   0.0 6.51E-03 2.28E-01 7.91E+03
*
*EVE 214 01:41 52 32.31 131 29.81
*TRA END
*
*EVE 215 02:02 52 30.98 131 24.77 !VHS TAPE #16
*
*EVE 216 02:05 52 31.14 131 24.20 !JUAN PEREZ SOUND - 3X
*-------------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J1      131    137   1544   4.742 307.090   0.517   9.179
*WID 0.5
*DEP 5,100
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1544   8.8   8.1 200.2  95.0  24.9 175.3   5.3 3.43E-04 3.26E-02 2.65E+02
*
*EVE 217 02:36 52 34.00 131 30.42
*TRA   J1S     138    138    235   0.529 219.166   0.083   6.345
*
*EVE 218 02:41 52 33.59 131 30.97
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J2      139    144   1422   4.381 128.210   0.483   9.065
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1422   8.1   7.5 200.2  95.0  27.2 173.0   3.0 1.91E-04 1.82E-02 1.37E+02
*
*EVE 219 03:10 52 30.88 131 25.31
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J3      145    149   1094   3.286  72.831   0.367   8.962
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1094   6.1   5.6 200.2  95.0  15.9 184.3   2.6 7.25E-04 6.89E-02 3.88E+02
*
*EVE 220 03:32 52 31.85 131 20.15
*TRA   J3S     150    150    170   0.353 145.339   0.050   7.051
*
*EVE 221 03:35 52 31.56 131 19.82 !HERRING SCHOOL
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J4      151    155   1174   3.324 249.020   0.383   8.670
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1174   6.2   5.7 200.2  95.0  14.8 185.4   3.7 3.60E-03 3.42E-01 1.95E+03
*
*EVE 222 03:58 52 30.37 131 24.92
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J5      156    162   1676   5.016 305.042   0.583   8.598
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1676   9.3   8.6 200.2  95.0  26.2 174.0   5.2 2.71E-04 2.57E-02 2.21E+02
  30  6910  38.4  35.6 200.2  95.0  17.3 182.9   0.0 8.76E-04 8.32E-02 2.96E+03
```

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*
*EVE 223 04:33 52 33.25 131 31.67
*TRA   J6      163    169   1592   4.992 119.392   0.533   9.360
*
*EVE 224 05:05 52 30.80 131 24.52 !JUAN PEREZ SOUND - 4X
*-------------------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J1      170    176   1634   4.696 312.300   0.533   8.804
*WID 0.5
*DEP 5,60
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1634   8.7   8.1 201.9  55.0  20.6 181.3   2.3 5.82E-04 3.20E-02 2.58E+02
*
*EVE 225 05:37 52 33.96 131 30.23
*TRA   J1S     177    177    250   0.582 230.545   0.083   6.989
*
*EVE 226 05:42 52 33.59 131 30.97
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J2      178    184   1399   4.407 126.962   0.483   9.118
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1399   8.2   7.6 201.9  55.0  19.9 182.0   2.5 5.53E-04 3.04E-02 2.30E+02
*
*EVE 227 06:11 52 30.94 131 25.18 !HERRING SCHOOL
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J3      185    189   1097   3.329  73.242   0.367   9.080
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1097   6.2   5.7 201.9  55.0  19.8 182.1   2.7 5.65E-03 3.10E-01 1.77E+03
*
*EVE 228 06:33 52 31.90 131 19.94
*TRA   J3S     190    190    249   0.575 187.296   0.083   6.895
*
*EVE 229 06:38 52 31.33 131 20.06 !HERRING SCHOOL
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J4      191    195   1149   3.515 248.117   0.383   9.170
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1149   6.5   6.0 201.9  55.0  30.3 171.6   4.1 1.60E-02 8.78E-01 5.29E+03
*
*EVE 230 07:01 52 30.02 131 25.42
*-------------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   J5      196    202   1571   4.952 310.708   0.517   9.585
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1571   9.2   8.5 201.9  55.0  31.1 170.8   2.4 1.52E-03 8.37E-02 7.11E+02
  31  6850  38.7  35.8 201.9  55.0  27.5 174.4   0.0 4.19E-03 2.31E-01 8.27E+03
*
*EVE 231 07:32 52 33.25 131 31.59 !HERRING SCHOOL ON J7
*TRA   J5S     203    204    270   0.847 237.125   0.100   8.471
*
*EVE 232 07:38 52 32.79 131 32.76 !BOTTOM TRACKING BACK ON
*TRA   J7      205    211   1651   5.790 123.436   0.550  10.527
*
*EVE 233 08:11 52 29.60 131 24.82 !SOUTH MORESBY ISLAND
*-------------------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   S1      212    222   2497   8.008  91.145   0.833   9.610
*WID 1.0
*DEP 5,200
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11  2497  14.8  27.5  79.3  79.3  73.3   9.8   4.0 9.48E-04 7.52E-02 2.07E+03
*
*EVE 234 08:15 52 29.77 131 23.83 !VHS TAPE #17
*
*EVE 235 09:01 52 29.44 131 11.67
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   S2      223    227   1246   3.941 181.152   0.433   9.094
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1246   7.3  13.5  33.1  33.1  31.9  12.9   2.0 2.74E-04 9.07E-03 1.23E+02
*
*EVE 235.5 09:27 52 25.5 131 11.8 !ESTIMATED DATA
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   S3      228    231    803   2.796 192.472   0.250  11.183
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   803   5.2   9.6  54.3  54.3  21.7  55.8   3.9 1.98E-04 1.07E-02 1.03E+02
*
*EVE 236 09:42 52 22.77 131 12.79
*-----------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea    TimeD   Speed
*TRA   S4      232    237   1304   4.159  94.691   0.433   9.597
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1304   7.7  14.3  77.9  77.9  32.3  46.8   3.4 1.75E-04 1.36E-02 1.94E+02
*
*EVE 237 10:08 52 22.43 131 06.00
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea    TimeD   Speed
*TRA   S5      238    241    851   2.630 180.000   0.267   9.862
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   851   4.9   9.0  85.9  85.9  24.4  59.4   2.3 1.34E-04 1.15E-02 1.04E+02
*
*EVE 238 10:24 52 19.80 131 06:25
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea    TimeD   Speed
*TRA   S6      242    248   1534   5.254 135.698   0.533   9.851
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1534   9.7  18.0  70.6  70.6  48.2  28.4   6.3 2.22E-04 1.57E-02 2.82E+02
*
*EVE 239 10:56 52 16.04 131 00:09
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea    TimeD   Speed
*TRA   S7      249    253   1245   4.344 147.418   0.450   9.653
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1245   8.0  14.9 178.5 173.3 122.4  77.9   4.7 2.62E-02 4.53E+00 6.75E+04
*
*EVE 240 11:23 52 12.38 130 56.18
*TRA END
*IDA 88A007.INT
*EVE 241 14:38 52 05.57 131 11.90 !LOUSCOONE INLET
*TRA   L3        2      5    880   2.606 343.572   0.283   9.198
*
*EVE 242 14:55 52 08.07 131 13.10
*TRA   L2        6      7    439   1.388 353.912   0.150   9.253
*
*EVE 243 15:04 52 09.45 131 13.34
*TRA   L1        8     12    989   2.977 333.319   0.333   8.930
*
*EVE 245 15:24 52 12.11 131 15.52 !180 TURN LOUSCOONE INLET
*TRA END
*
*EVE 246 15:29 52 11.75 131 15.11
*-----------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L1       14     17    797   2.457 152.026   0.250   9.829
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   797   4.6   8.4  41.3  41.3  22.5  16.8   1.9 4.06E-04 1.68E-02 1.41E+02
*
*EVE 247 15:44 52 09.58 131 13.23
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L2       18     19    403   1.620 196.953   0.150  10.803
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   2   403   3.0   5.6  67.7  67.7  23.0  46.5   1.3 2.66E-04 1.80E-02 1.00E+02
*
*EVE 248 15:53 52 08.03 131 14.00
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L3       20     21    327   1.122 171.504   0.117   9.620
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   2   327   2.1   3.8  79.9  79.9  34.9  46.4   1.1 2.33E-04 1.86E-02 7.17E+01
*
*EVE 249 16:00 52 06.92 131 13.73 !COURSE ALTERATION
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L3       22     25    870   2.499 148.915   0.300   8.330
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   870   4.6   8.6  56.3  56.2  47.9  12.1   2.0 8.37E-04 4.71E-02 4.03E+02
*
*EVE 250 16:18 52 04.78 131 11.63
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L4       26     29    799   2.278 210.657   0.250   9.113
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   799   4.2   7.8  47.0  47.0  26.3  20.5   2.2 3.45E-04 1.62E-02 1.27E+02
*
*EVE 251 16:33 52 02.82 131 13.52
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L5       30     32    695   1.902  75.073   0.233   8.153
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   3   695   3.5   6.5  46.5  46.5  26.2  19.8   1.1 7.66E-04 3.56E-02 2.32E+02
*
*EVE 252 16:47 52 03.31 131 10.53
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*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L6       33     36    965   2.710 179.476   0.333   8.131
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   965   5.0   9.3  44.7  44.7  34.2   9.3   2.2 6.39E-04 2.85E-02 2.65E+02
*
*EVE 253 17:07 52 00.60 131 10.49
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L7       37     51   3603  10.500 138.711   1.183   8.873
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  15  3603  19.4  36.0  73.6  73.6  56.7  18.8   8.9 3.20E-04 2.36E-02 8.49E+02
*
*EVE 254 17:48 51 55.55 131 03.75 !VHS TAPE #18
*
*EVE 255 18:18 51 52.71 130 59.25 !CAPE ST. JAMES
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L8       52     54    655   1.269  54.326   0.233   5.438
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   3   655   2.4   4.4  58.5  58.5  22.5  36.9   1.1 3.67E-04 2.15E-02 9.35E+01
*
*EVE 256 18:32  51 53.45 130 57.58
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L9       55     60   1500   4.077 345.098   0.500   8.154
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1500   7.6  14.0  66.6  66.6  22.1  40.1   3.0 3.18E-04 2.12E-02 2.96E+02
*
*EVE 257 19:02 51 57.39 130 59.28
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L10      61     72   2905   8.303  15.784   0.967   8.589
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  12  2905  15.4  28.5  73.6  73.6  25.2  58.6   7.4 1.26E-04 9.28E-03 2.64E+02
*
*EVE 258 20:00 52 05.38 130 55.61
*-----------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L11      73     83   2740   8.380 356.053   0.917   9.142
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11  2740  15.5  28.7 157.6 157.6  98.5  50.5   8.7 1.14E-04 1.80E-02 5.19E+02
*
*EVE 259 20:55 52 13.74 130 56.55 !S# ESTIMATED
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L12      84    108   5823  17.658 334.366   1.917   9.213
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  25  5823  32.7  60.6  93.5  93.5  39.6  74.3  12.2 5.88E-05 5.50E-03 3.33E+02
 137 31562 177.6 329.0  84.2  84.0 116.3  73.3   0.0 2.68E-03 2.25E-01 7.41E+04
*
*EVE 261 22:50 52 29.66 131 09.06 !JUAN PEREZ SOUND
*-------------------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L13     109    122   3265  10.718 272.459   1.117   9.599
*WID 0.5
*DEP 5,40
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  14  3265  19.8  18.4  93.6  33.6  14.6  73.5  15.9 4.53E-03 1.52E-01 2.80E+03
*
*EVE 263 23:57 52 30.12 131 26.65
*TRA   L14     123    124    394   1.336  11.304   0.133  10.020
*
*DAT 15-DEC-88
*
*EVE 264 00:00 52 30.91 131 26.65 !VHS TAPE #19
*
*EVE 265 00:05 52 31.43 131 26.22 !HERRING SCHOOL
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L15     125    131   1702   5.338  94.082   0.567   9.419
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1702   9.9   9.2 208.3  35.0  19.2 219.3   4.7 1.14E-02 4.01E-01 3.67E+03
  21  4967  29.7  27.5 131.7  34.1  17.2 156.2   0.0 6.89E-03 2.35E-01 6.47E+03
*
*EVE 266 00:39 52 31.05 131 17.47 !LASKEEK BAY - OFFSHORE
*-------------------------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L16     132    140   2044   5.998 344.486   0.683   8.778
*WID 1.0
*DEP 5,200
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2044  11.1  20.6 110.4 100.7  50.4  61.0   4.7 3.49E-04 3.51E-02 7.23E+02
*
*EVE 267 01:20 52 36.83 131 20.11
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L17     141    147   1534   4.450  89.873   0.517   8.614
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1534   8.2  15.3  90.6  90.6  31.5  60.3   3.6 2.64E-04 2.40E-02 3.66E+02
*
*EVE 268 01:51 52 36.84 131 12.78
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L18     148    151    839   2.750   0.127   0.267  10.313
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   839   5.1   9.4  80.3  80.3  23.6  54.1   2.2 2.13E-04 1.71E-02 1.62E+02
*
*EVE 269 02:07 52 39.59 131 12.77
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L19     152    159   1942   5.622 275.922   0.667   8.433
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   k_/m^3   kg/m^2        t
   8  1942  10.4  19.3  74.1  74.1  24.1  47.3   5.0 3.12E-04 2.32E-02 4.46E+02
*
*EVE 270 02:47 52 40.17 131 21.99
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L20     160    167   1829   5.832 358.393   0.600   9.721
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1829  10.8  20.0 116.4 116.4  42.1  73.9   6.7 1.63E-04 1.89E-02 3.78E+02
*
*EVE 271 03:23 52 46.00 131 22.26
*-----------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   L21     168    174   1572   4.925 270.000   0.533   9.235
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1572   9.1  16.9 149.8 141.3  87.9  67.7   5.8 7.57E-04 1.07E-01 1.81E+03
*
*EVE 272 03:55 52 46.00 131 30.40
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   L22     175    177    551   1.630 359.358   0.200   8.151
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   3   551   3.0   5.6  70.1  70.1  78.3   2.2   0.7 7.61E-03 5.33E-01 2.98E+03
*
*EVE 273 04:07 52 47.63 131 30.43
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   L23     178    185   1860   4.598  91.498   0.617   7.456
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1860   8.5  15.8  95.2  95.2  68.4  32.3   5.3 3.38E-04 3.22E-02 5.07E+02
*
*EVE 274 04:44 52 47.51 131 22.83
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   L24     186    188    556   1.965  14.782   0.183  10.719
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   3   556   3.6   6.7 105.5 105.5  36.4  70.2   2.1 5.94E-05 6.27E-03 4.23E+01
*
*EVE 275 04:55 52 49.41 131 22.00
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   L25     189    199   2740   9.180 270.936   0.933   9.835
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11  2740  17.0  31.5 104.7 104.7  55.4  43.3   6.1 1.79E-04 1.88E-02 5.91E+02
*
*EVE 276 05:51 52 49.56 131 37.19
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   L26     200    201    498   1.541   2.468   0.167   9.248
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   2   498   2.9   5.3  53.3  53.3  25.0  28.2   1.2 1.89E-04 1.01E-02 5.33E+01
*
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*EVE 277 06:01 52 51.10 131 37.08
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L27     202    213   2786   9.016  89.745   0.917   9.835
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  12  2786  16.7  30.9  96.9  96.9  66.5  30.2   9.4 1.68E-04 1.63E-02 5.03E+02
*
*EVE 278 06:16 52 51.14 131 32.83 !VHS TAPE #20
*
*EVE 279 06:56 52 51.14 131 22.15
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L28     214    216    647   2.010   1.040   0.200  10.052
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   3   647   3.7   6.9  80.7  80.7  21.9  74.0   1.5 2.55E-04 2.06E-02 1.42E+02
*
*EVE 280 07:08 52 53.15 131 22.09 !S# ESTIMATED
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L29     217    225   2241   7.895 267.386   0.817   9.668
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2241  14.6  27.1 115.7 115.3  79.1  40.1   9.4 1.72E-04 1.99E-02 5.38E+02
  94 21639 124.8 231.2 101.9 100.4  67.1  37.5   0.0 3.98E-04 4.00E-02 9.24E+03
*
*EVE 281 07:57 52 52.79 131 35.16 !LASKEEK BAY - INSHORE
*-----------------------------------------------------------------------------

*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L30     226    231   1349   3.595 241.237   0.400   8.988
*WID 1.0
*DEP 5,200
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1349   6.7  12.3 115.8 115.8  86.9  21.6   4.1 7.55E-04 8.74E-02 1.08E+03
*
*EVE 282 08:21 52 51.06 131 40.38 !SELWYN INLET
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L31-32  232    235    965   2.703 291.027   0.317   8.537
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   965   5.0   9.3 123.1 123.1  75.1  46.2   2.4 4.95E-04 6.10E-02 5.65E+02
*
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*EVE 283 08:40 52 52.03 131 44.56
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L33     236    238    750   2.396 254.262   0.233  10.270
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   3   750   4.4   8.2 125.4 125.4  86.4  42.4   1.9 7.71E-04 9.67E-02 7.95E+02
*
*EVE 284 08:54 52 51.38 131 48.38
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L34     239    243   1099   3.682 314.259   0.367  10.043
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1099   6.8  12.6 107.0 107.0  86.5  32.4   2.0 3.53E-04 3.77E-02 4.76E+02
*
*EVE 285 09:16 52 53.95 131 52.75 !180 TURN SELWYN INLET
*TRA END
*
*EVE 286 09:42 52 52.43 131 48.54
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L34     249    251    715   2.344 100.322   0.217  10.819
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   3   715   4.3   8.0 125.0 125.0  80.7  43.1   2.1 4.36E-04 5.46E-02 4.39E+02
*
*EVE 287 09:55 52 52.01 131 44.72
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   L33-32  252    255    996   3.145 108.155   0.333   9.436
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   996   5.8  10.8 109.4 109.4  75.0  27.9   4.0 1.50E-03 1.64E-01 1.77E+03
*
*EVE 288 10:15 52 51.03 131 39.77 !CHANGE SIMRAD SOUNDER PAPER
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D0      256    257     71   1.497 132.426   0.200   7.484
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   2    71   2.8   5.1  64.6  64.6  29.6  35.0   1.4 1.48E-04 9.56E-03 4.91E+01
*
*EVE 289 10:27 52 50.02 131 37.94 !DANA INLET
*-----------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D1      258    266   2185   6.447 256.637   0.717   8.996
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2185  11.9  22.1  64.5  64.5  52.6  10.2   3.3 4.83E-04 3.11E-02 6.89E+02
*
*EVE 291 11:10 52 48.53 131 48.32 !180 TURN DANA INLET
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D1      267    270   1000   2.828  96.296   0.333   8.484
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4  1000   5.2   9.7  44.3  44.3  35.6   3.9   2.4 4.79E-04 2.12E-02 2.06E+02
*
*EVE 291.5 11:30 52 48.22 131 43.67
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D2      271    275   1201   3.229  74.553   0.417   7.751
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1201   6.0  11.1  64.7  64.7  71.5   5.8   4.6 7.76E-04 5.02E-02 5.56E+02
*
*EVE 292 11:55 52 49.08 131 38.52
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D2      276    277    474   1.422 183.168   0.150   9.481
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   2   474   2.6   4.9  64.3  64.3  39.0  23.4   1.5 7.70E-04 4.95E-02 2.41E+02
*
*EVE 293 12:04 52 47.66 131 38.65
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D2      278    281   1000   2.989 289.139   0.350   8.539
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4  1000   5.5  10.3 140.0 140.0  66.3  79.2   3.0 1.78E-04 2.49E-02 2.56E+02
*
*EVE 294 12:25 52 48.64 131 43.32
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D2      282    286   1246   5.200 212.202   0.417  12.479
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1246   9.6  17.8 151.6 151.6 100.7  53.8   4.0 4.25E-04 6.45E-02 1.15E+03
*
*EVE 295 12:35 52 46.45 131 45.53 !VHS TAPE #21
```

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*
*EVE 296 12:50 52 44.24 131 47.90 !CRESCENT PT.
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D2      287    290    819   2.304  36.998   0.267   8.639
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   4   819   4.3   7.9 120.1 120.1  84.2  41.7   2.3 4.00E-04 4.80E-02 3.80E+02
*
*EVE 297 13:06 52 46.08 131 45.61 !TANU PASS
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D3      291    292    499   1.483 144.010   0.167   8.899
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   2   499   2.7   5.1  57.8  57.8  45.5  24.5   0.9 5.38E-04 3.11E-02 1.58E+02
*
*EVE 298 13:16 52 44.88 131 44.17 !RICHARDSON INLET
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D3      293    301   2097   6.479  93.717   0.700   9.255
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   9  2097  12.0  22.2 142.1 138.5 101.2  49.8   5.2 9.37E-04 1.30E-01 2.88E+03
*
*EVE 299 13:58 52 44.46 131 33.49
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D4      302    315   3487  10.785  46.823   1.167   9.245
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  14  3487  20.0  37.0 141.5 136.0 118.5  36.9   6.0 3.96E-04 5.39E-02 1.99E+03
*
*EVE 300 15:08 52 51.84 131 20.48
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   D4      316    321   1494   6.056  38.943   0.650   9.317
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1494  11.2  20.8  59.9  59.9  22.8  33.8   6.5 4.36E-05 2.61E-03 5.43E+01
  91 21447 127.0 235.2 107.9 106.7  88.0  36.8   0.0 5.48E-04 5.84E-02 1.37E+04
*
*EVE 301 15:47 52 56.55 131 14.17 !REEF ISLAND GROUND
*TRA END
*IDA 88A008.INT
*EVE 302 17:25 52 55.07 131 16.56 !HECATE STRAIT - 50 FM EDGE
*-------------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   R1        2     11   2295   6.849 183.030   0.767   8.934
*WID 1.0
*DEP 5,200
*ZER
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  10   2295  12.7  23.5  22.4  22.4  25.9  11.4   5.3 3.79E-04 8.49E-03 1.99E+02
*
*EVE 303 18:11 52 48.23 131 17.16
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   R2        12     26   3664  12.163 151.309   1.217   9.997
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  15   3664  22.5  41.7  62.4  62.4  33.8  27.8  10.7 1.34E-04 8.35E-03 3.48E+02
*
*EVE 304 19:24 52 37.56 131 7.52
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   R3        27     34   1797   5.954  78.373   0.583  10.208
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8   1797  11.0  20.4  53.9  53.9  19.0  37.0   4.1 3.33E-05 1.80E-03 3.67E+01
*
*EVE 305 19:59 52 38.76 130 57.91
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   H2        35     40   1368   4.541  80.876   0.450  10.091
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6   1368   8.4  15.6  62.7  62.7  20.7  43.7   4.9 2.63E-05 1.65E-03 2.57E+01
*
*EVE 306 20:21 52 39.27 130 51.38 !VHS TAPE #22
*
*EVE 307 20:26 52 39.48 130 50.52
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis      Bea   TimeD   Speed
*TRA   H3        41     47   1550   5.054   2.403   0.533   9.477
*LOU
   N      P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #      #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7   1550   9.4  17.3  65.9  65.9  20.0  45.8   4.5 4.22E-05 2.78E-03 4.82E+01
*
*EVE 308 20:58 52 44.53 130 50.17
*TRA   H4        48     58   2548   4.735  82.232   0.867   5.463
*
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*EVE 309 21:50 52 45.17 130 42.42
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H5       59     63   1246   4.450   0.000   0.417  10.680
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1246   8.2  15.3  91.7  91.7  23.7  71.5   2.2 3.97E-05 3.64E-03 5.56E+01
*
*EVE 310 22:15 52 49.62 130 42.42
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H6       64     68   1170   5.070  63.778   0.400  12.674
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1170   9.4  17.4  76.7  76.7  22.5  53.8   5.4 8.09E-05 6.20E-03 1.08E+02
*
*EVE 311 22:39 52 51.86 130 34.89
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H7       69     74   1424   4.820 324.414   0.467  10.329
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1424   8.9  16.5  65.5  65.5  21.2  53.0   2.0 5.69E-05 3.72E-03 6.16E+01
*
*EVE 312 23:07 52 55.78 130 39.54
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H8       75     80   1431   4.914 338.120   0.300  16.379
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1431   9.1  16.9  68.3  68.3  65.0  29.5   6.5 8.47E-05 5.79E-03 9.76E+01
*
*EVE 313 23:25 53 00.34 130 42.58
*-------------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H9       81     86   1383   4.806 278.498   0.650   7.394
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1383   8.9  16.5  78.0  78.0  33.3  63.7   2.3 5.14E-05 4.01E-03 6.61E+01
*
*DAT 16-DEC-88
*
*EVE 314 00:04 53 01.05 130 50.48
*-------------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H10      87     92   1494   5.579   4.757   0.500  11.158
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1494  10.3  19.1  72.8  72.8  25.8  36.1   3.3 4.12E-05 3.00E-03 5.73E+01
*
*EVE 315 00:34 53 06.61 130 49.71
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H11      93     97   1249   4.891 298.852   0.450  10.868
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1249   9.1  16.8  76.8  76.8  37.6  45.6   3.2 6.01E-05 4.62E-03 7.74E+01
*
*EVE 316 01:01 53 08.97 130 56.85 !HERRING SCHOOL
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H12      98    104   1581   4.716  28.868   0.483   9.757
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1581   8.7  16.2  67.3  67.3  46.7   9.1   0.6 6.87E-04 4.62E-02 7.48E+02
*
*EVE 317 01:30 53 13.10 130 53.05
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H13     105    110   1436   5.217 313.933   0.483  10.795
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1436   9.7  17.9  73.2  73.2  26.3  51.7   3.8 5.11E-05 3.74E-03 6.70E+01
*
*EVE 318 01:59 53 16.72 130 59.33
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H14     111    116   1440   4.797  35.822   0.483   9.926
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1440   8.9  16.5  72.2  72.2  28.2  40.0   3.3 3.98E-05 2.87E-03 4.72E+01
*
*EVE 319 02:28 53 20.61 130 54.63
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H15     117    121   1219   4.511 313.768   0.400  11.276
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   5  1219   8.4  15.5  87.4  87.4  29.6  63.6   2.8 3.74E-05 3.27E-03 5.05E+01
*
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*EVE 320 02:52 53 23.73 131 00.09 !VHS TAPE #23
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   H16     122    128   1618   4.366  66.945   0.550   7.939
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1618   8.1  15.0  80.7  80.7  33.0  44.4   3.3 5.45E-05 4.40E-03 6.58E+01
 116 27365 171.7 317.9  67.4  67.4  36.5  28.1   0.0 1.01E-04 6.79E-03 2.16E+03
*
*EVE 321 03:25 53 25.44 130 53.35 !BONILLA ISLAND - 2X
*-----------------------------------------------------------------------------

*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B1      129    134   1325   4.606 301.691   0.433  10.630
*WID 1.2
*DEP 5,200
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1325   8.5  19.0  78.6  78.6  37.9  41.7   4.3 9.52E-05 7.48E-03 1.42E+02
*
*EVE 322 03:51 53 27.86 130 59.93
*TRA   B1S     135    136    417   1.257  30.766   0.150   8.380
*
*EVE 323 04:00 53 28.94 130 58.85
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B2      137    144   1993   5.462 118.663   0.667   8.193
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1993  10.1  22.5  73.5  73.5  37.4  30.8   4.0 6.63E-05 4.87E-03 1.10E+02
*
*EVE 324 04:40 53 26.32 130 50.80
*TRA   B2S     145    146    341   0.921  14.990   0.100   9.212
*
*EVE 325 04:46 53 27.21 130 50.40 !HERRING SCHOOL
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B3      147    152   1450   5.254 303.762   0.500  10.509
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1450   9.7  21.6  74.1  74.1  48.0  13.5   7.7 6.40E-03 4.74E-01 1.02E+04
*
*EVE 326 05:16 53 30.13 130 57.74
*TRA   B3S     153    154    338   1.384  48.348   0.100  13.844
*
*EVE 327 05:22 53 31.05 130 56.00 !HERRING SCHOOL
*-----------------------------------------------------------------
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*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B4      155    162   1935   4.987 122.509   0.650   7.672
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1935   9.2  20.5  67.0  67.0  33.0  23.2   1.8 4.76E-03 3.19E-01 6.54E+03
*
*EVE 328 06:01 53 28.37 130 48.93
*TRA   B4S     163    164    324   1.727  45.509   0.117  14.801
*
*EVE 329 06:08 53 29.58 130 46.86 !HERRING SCHOOL
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B5      165    171   1750   5.512 297.796   0.600   9.186
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1750  10.2  22.7  68.4  68.4  29.8  45.9   4.0 1.79E-04 1.22E-02 2.78E+02
*
*EVE 330 06:44 53 32.15 130 55.06
*TRA   B5S     172    173    500   1.494  78.032   0.167   8.967
*
*EVE 331 06:54 53 32.46 130 52.60
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B6      174    179   1499   4.108 115.833   0.483   8.500
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1499   7.6  16.9  64.0  64.0  40.7  27.6   4.5 5.25E-05 3.36E-03 5.68E+01
*
*EVE 332 07:23 53 30.67 130 46.38
*TRA   B6S     180    181    270   0.812  20.569   0.100   8.119
*
*EVE 333 07:29 53 31.43 130 45.90
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   B7      182    187   1386   4.246 303.923   0.433   9.799
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   6  1386   7.9  17.5  68.6  68.6  27.4  46.2   3.8 1.39E-04 9.54E-03 1.67E+02
  47 11338  63.3 140.7  70.7  70.7  41.8  18.3   0.0 1.76E-03 1.25E-01 1.75E+04

*
*EVE 334 07:55 53 33.80 130 51.83
*TRA   B7S     188    189    390   1.054  62.902   0.167   6.325
*
*EVE 335 08:05 53 34.28 130 50.25
*TRA END
*IDA 88A009.INT
*EVE 336 08:30 53 32.33 130 44.83 !WEST BANKS ISLAND N>S
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*-------------------------------------------------------------------------
*TRA   B8S       2      3    412   1.205  32.163   0.133   9.036
*
*EVE 337 08:38 53 33.35 130 43.75
*TRA   B9        4      5    499   1.646 303.558   0.167   9.878
*
*EVE 338 08:48 53 34.26 130 46.06 !S# ESTIMATED
*TRA   B10       6      9    996   3.388  42.690   0.333  10.163
*
*EVE 339 09:08 53 36.75 130 42.19 !WEST BANKS ISLAND
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   C1        10     20   2666   7.621 174.812   0.900   8.468
*WID 1.0
*DEP 5,200
*ZER
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11  2666  14.1  26.1 102.3 102.3  42.2  67.0   7.6 2.09E-04 2.13E-02 5.58E+02
*
*EVE 340 10:02 53 29.16 130 41.03 !VHS TAPE #24
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   C2        21     32   2813   9.648 159.719   0.950  10.156
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  12  2813  17.9  33.1 110.5 110.5  40.6  69.6   9.4 7.20E-05 7.96E-03 2.63E+02
*
*EVE 341 10:59 53 20.11 130 35.42
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   C3        33     40   1893   6.210 156.155   0.617  10.070
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   8  1893  11.5  21.3 119.8 119.8  59.1  59.3   5.2 8.41E-05 1.01E-02 2.15E+02
*
*EVE 342 11:36 53 14.43 130 31.22
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit     Dis     Bea   TimeD   Speed
*TRA   C4        41     54   3429  11.034 119.122   1.167   9.458
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  14  3429  20.4  37.8 135.8 135.8  97.2  46.9  11.1 8.85E-05 1.20E-02 4.55E+02
*
*EVE 343 12:46 53 09.06 130 15.13
*-----------------------------------------------------------------
```

```
*! Tra T-name  Seq1   Seq2   Pit      Dis      Bea   TimeD   Speed
*TRA   C5       55     70   3788  11.579 114.873   1.267   9.141
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  16  3788  21.4  39.7  89.0  89.0  67.4  21.2  11.0 2.01E-04 1.79E-02 7.12E+02
*
*EVE 344 14:02 53 04.19 129 57.63
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit      Dis      Bea   TimeD   Speed
*TRA   C6       71     81   2742   8.739 111.973   0.917   9.533
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
  11  2742  16.2  30.0 177.0 170.4 134.4  52.1   6.6 1.52E-04 2.59E-02 7.75E+02
*
*EVE 345 14:57 53 00.92 129 44.15
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit      Dis      Bea   TimeD   Speed
*TRA   C7       82     88   1701   5.433 171.968   0.567   9.588
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1701  10.1  18.6 115.1 115.0  72.6  53.5   3.4 5.79E-05 6.66E-03 1.24E+02
*
*EVE 346 15:31 52 55.54 129 42.89
*-----------------------------------------------------------------
*! Tra T-name  Seq1   Seq2   Pit      Dis      Bea   TimeD   Speed
*TRA   C8       89     95   1743   4.995 159.863   0.617   8.101
*LOU
   N     P   Len  Area   Dep   Col   Dcs   Dcb   Lcb    Vol D   Surf D  Biomass
   #     #    km  km^2     m     m     m     m    km   kg/m^3   kg/m^2        t
   7  1743   9.3  17.1 118.8 118.8  78.3  53.8   6.3 1.25E-04 1.48E-02 2.54E+02
  86 20775 120.9 223.8 120.8 119.9  81.1  49.3   0.0 1.25E 04 1.50E-02 3.36E+03
*
*EVE 347 16:08 52 50.85 129 40.04
*TRA END
*
*ICO KE:
*EXI
```